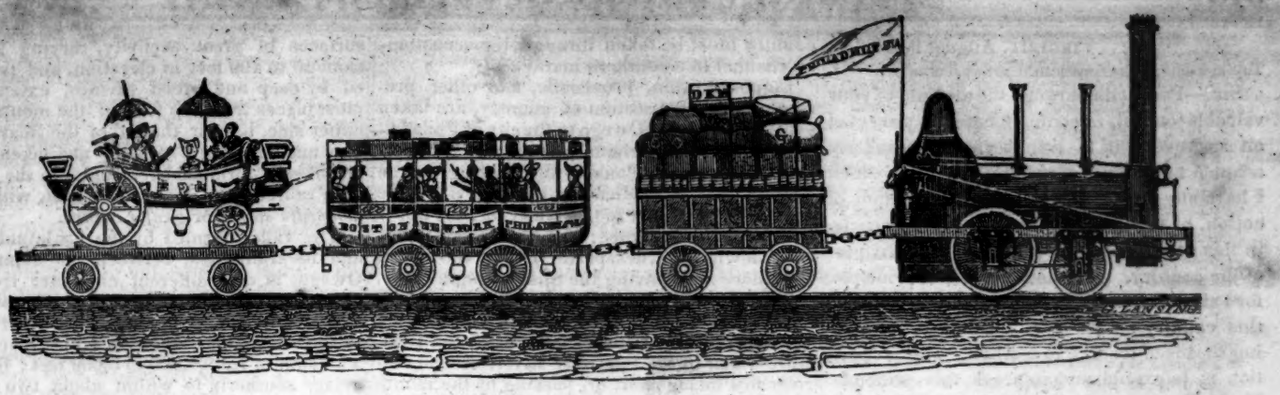

AMERICAN RAILROAD JOURNAL,
AND ADVOCATE OF INTERNAL IMPROVEMENTS.

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AMERICAN RAILROAD JOURNAL, &c.

NEW-YORK, SEPTEMBER 14, 1833.

Ithaca and Owego Railroad.—We continue in this number the Report of the Engineer of the Ithaca and Owego Railroad. It is very lengthy, entering minutely into detail of the preliminary and locating surveys, which, to many of our readers, will probably be interesting. It will be continued in our next. We also give a letter of recent date from John Randl, Esq., the Chief Engineer, which shows its affairs to be in a very favorable condition, and the road in rapid progress towards completion; and we take this occasion to say that, sanguine as are the anticipations of the friends of this road, they will be *more* than realized. It will be a great thoroughfare.

We are gratified to learn that the New-York and Erie Railroad Company is organized by an election of Directors and Officers, a list of whom is annexed. No period, surely, could be more fitting than the present for bringing forward this long contemplated and noble undertaking. The public mind throughout the country is alive on the subject of Railroads.

The Erie Canal is, even at *this* time, insufficient for the immense interior trade of our rapidly increasing population, and, therefore, the proposed Railway is loudly called for, as well for the interests of this city, as for those of the southern range of counties, and the *great and fertile west.*

It is a work which promises important advantages, and great increase of value of property to those in whose immediate vicinity it shall pass. It therefore becomes those owning property in the *southern tier* of counties in this state, to deal liberally with those who may be authorised to receive subscriptions of land or property on the proposed route. They should not forget that great efforts are now making to complete a line of railroad from Albany to Lake Erie, as well as through the northern part of Pennsylvania and New Jersey, to New York; and that, if both should be constructed before that now under consideration, there will be but small prospect of their ever having one through the southern tier *east* of Broome county. There should be *unity* and *liberality* of action: no effort should be omitted, either by the inhabitants of this city, or by those living on the route, which may tend to its success.

Directors of the New-York and Erie Railroad Company, elected August 9, 1833: Stephen Whitney, Peter Harmony, John Duer, Goold Hoyt, James Boorman, William G. Bucknor, Elihu Townsend, Michael Burnham, Eleazar Lord, S. B. Ruggles, Benjamin Wright, D. N. Lord, *of New-York*; Jeremiah H. Pierson, and Cornelius J. Blauvelt, *of Rockland county*; George D. Wickham, *of Orange*; Joshua Whitney, *of Broome*; Jas. Pumpelly, *of Tioga.*

Eleazar Lord was elected President; Goold Hoyt, Vice-President; William G. Bucknor, Treasurer; John Duer, Esq., Counsel.

Office in the Rooms of the Treasurer, No. 42 Wall street, where all communications for the Company are to be directed.

Winchester and Potomac Railroad.—Mr. Robinson, the Engineer, has given public notice that proposals will be received by him in Winchester, till the 7th of November next, for the grading and masonry of the whole line of the road, being twenty-seven miles in extent—commencing near the town of Winchester, Va., and ending at the Shenandoah river. The line will be divided into sections, of convenient length, so as in that respect to accommodate contractors.—[Nat. Intel.]

We are enabled to state, from a highly respectable source, that the statement made on Monday, respecting the accident on the Newcastle Railroad, was incorrect in several particulars, and that the assertion that two cars overturned was entirely erroneous; no car having been overturned, but the flanges of the wheels merely slipped over the rails by the pressure of the rear cars on the sudden checking of the steam. The Directors of the Railroad Line are now making a critical examination of the affair, and will immediately adopt such remedies as will effectually prevent the recurrence of any accident in future. There was no one injured, except one gentleman, who jumped from the car and was slightly hurt in his descent.—[Baltimore Gazette.]

New Engine.—The Earl of Dundonald has made a most successful trial of his newly invented rotary steam engine. A boat was propelled with great rapidity, and turned backwards and forwards through Westminster bridge several times. The engines are not larger than two Cheshire cheeses, and the whole apparatus so compact that a frigate's launch could be fitted with it. His lordship was accompanied by Mr. Ogle, Captain Brown, Mr. G. J. Mangary, &c. Some slight alteration, in a very minor detail, will be made, when their great improvement will be deemed complete, and applicable to our navy.—[London Herald.]

Dredging Machine.—We yesterday had the pleasure of witnessing the operation of a newly invented and highly improved Dredging Machine, employed upon the canal to remove deposits of mud under water. It is the invention of our townsman, Capt. O. Teall, who has been 4 or 5 years in bringing it to its present state of perfection. The Machine is attached to a common scow, and is worked by one span of horses. Its merits have been fully tested, we understand, by the Superintendants of Repairs upon the whole line of the canal, and is confidently recommended by them all to the use of the State. It is peculiarly adapted to the purpose of clearing the bed of the canal, subject to the consequences of sudden freshets on the Mohawk, where heretofore it has been necessary to draw off the water to remove impediments.—Where we saw it in operation, as much mud was removed by it in an hour and an half, with the water at full height, as would have cost $25 by the ordinary method. We understand that the inventor is confident that it is adapted to the removal of the obstructions in the Hudson river, below Albany, where he intends to make a trial with it. We should judge that it must eventually come into use on canals generally. —[Onondaga Standard.]

Air in Water.—Fresh water generally is calculated to contain one fiftieth of its weight of air. Water has an affinity for oxygen, which it absorbs. Chemists say its good or bad qualities depend on the quantity of oxygen which is produced or absorbed too much by salts, mud, &c.

VIRGINIA, August 9, 1833.

To the Editor of the American Railroad Journal:

SIR,—Permit me through the medium of your valuable journal, to communicate the project of an improvement in transportation peculiarly adapted to the kind of road and carriage which I have suggested, and to the transportation of cotton, or tobacco, or flour, or any dry article, in this southern and in the great western part of the country. It is nothing new in principle, for I am told it is an old custom in some parts of this country for the small planters to roll their hogsheads of tobacco to market. The proposition is to extend and improve this principle. You will now comprehend the whole at a glance.

It is simply to construct in a very strong manner, bound with iron, a large cylinder or cask, or roller, say 7 to 20 feet high, and sufficiently long or thick to receive the longest bales of cotton—say 5 to 12 feet; it would then only be necessary in practice to pack this tumbler perfectly full and tight, securing it so that no part of the lading could possibly shift.

It is manifest that a power equal to that of one horse, on such a smooth and level road of common earth, as I have suggested, would draw or roll more than one of these machines any required speed. They would scarcely offer any resistance, attached to a steam carriage? Nay, I doubt not the power of one man on a tread-wheel would propel two of them with ease and rapidity, after being once in motion.

C. O.

Report of the Engineer in Chief of the Ithaca and Owego Railroad Company.

ENGINEER DEPARTMENT, Feb. 26, 1833.

To the President and Directors, &c.:

GENTLEMEN,—I have the honor respectfully to submit the following Report, on the Reconnoissance, Preliminary Surveys, Experimental Lines, and Final Location of your Road from Ithaca to Owego, with Plans and Profiles thereof; together with the present state of the work upon the road, and the estimated cost and time to complete the same.

It will, no doubt, be readily admitted by all who examine the subject, that this road, (in addition to the immediate advantages to be afforded by it to the villages at each end thereof, and persons living in the vicinity,) is destined to become one of the most important links in the chain of internal improvement that has yet been projected in this section of country, to connect the cities of New-York, Philadelphia, and Baltimore, with the Erie Canal and Lake Ontario, and the numerous towns and villages bordering their shores.

The village of Ithaca, at the northerly termination of this railroad, is situated on the inlet of the Cayuga Lake, about one mile and a half south of it; from which place there now is, and for some years has been, a water communication with the *Erie Canal*, at Montezuma—with *Lake Erie*, at the villages of Buffalo and Black Rock—with *Lake Ontario*, at the village of Oswego—and with the *Hudson River*, at the city of Albany.

When the Ithaca and Owego Railroad is completed, this connection will be extended southerly to the Susquehanna River, at the village of Owego; from which place that river is navigable to the head of tide water at Port Deposit, for arks and rafts, at the spring and fall freshets, from about four to five weeks each spring *before* the Erie Canal can be used from Utica to Albany.

From the village of Owego a short route may be obtained to the city of New-York, by the way of the New-York and Erie Railroad, which is to pass through this village. A charter for this road was obtained from the Legislature of this State last winter; its friends confidently expect that it will be commenced and completed thus far at an early day. Until that is done, a large portion of the produce of this section of country must be taken through the accustomed channel to a southern market.

Lumber, grain, provisions, and other productions of this section of country, are taken every season from Owego to the city of Philadelphia, by the Susquehanna River, and Pennsylvania and Union Canals: or, passing by the Union Canal at Middletown, continue down the Susquehanna River to tide water at Port Deposit, or Havre de Grace; and from thence proceed down the Chesapeake Bay to the city of Baltimore: or, leaving the Susquehanna River, at Havre de Grace, proceed to Turkey Point, and thence passing up the Elk River to Back Creek, and through the Chesapeake and Delaware Canal to the Delaware River, ascend that river to Philadelphia: or, passing by the mouth of Back Creek, ascend the Elk five miles further, to Frenchtown; and from thence pass over the Newcastle and Frenchtown Railroad to the Delaware River at Newcastle, and ascend that river to Philadelphia.

A considerable amount of the lumber used by me in the construction of part of the Chesapeake and Delaware Canal, was brought down the Susquehanna River, from the neighborhood of Owego. This lumber, even with the addition of a heavy charge for land transportation across the Delaware peninsula, (fifteen miles,) cost *less money at that time* (1824) than lumber of equal quality brought down the *Delaware River*.

It is a circumstance worthy of observation in relation to the location of this railroad, that *its summit* (a marsh about 8½ miles south 40° 35′ east from the village of Ithaca) is *also* the summit which divides the waters running *northerly* into the *Atlantic Ocean*, by the way of the Beaver Meadow Brook, the Six Mile Creek, the Cayuga Lake, the Seneca and Oswego Rivers, Lake Ontario, and the River St. Lawrence; from those which descend *southerly* to the same ocean, through the Cattatunk and Owego Creeks, the Susquehanna River, and the Chesapeake Bay.

This summit swamp is three feet *below* the level of the railroad at that place, and *above* the level of the

	Summer height.	Above the level of the Atlantic.
Susquehanna River at Owego,	189 ft.	777 ft.
Ohio River at the mouth of the Muskingum, - - - -	400	566
Lake Erie, - - - -	402	564
Genesee River at the Erie Canal,	467	499
Seneca Lake, - - - -	547	419
Rome summit, (old Canal,) -	547	419
Erie Canal at Utica, - -	553	413
Erie Canal at Syracuse and Salina, - - - - -	576	390
Cayuga Lake at Ithaca - -	596	370
Seneca River at the Erie Canal,	596	370
Oneida Lake, - - - -	604	362
Onondaga Lake, - - -	615	351
Lake Ontario, - - -	734	232
Atlantic Ocean, - - -	966	—

The waters of the Cattatunk Creek and Beaver Meadow Brook approach within 300 yards of each other, in this swampy piece of ground, which for 300 yards in length, and 150 yards in breadth, varies less than three feet in elevation.

This swamp is situated in a remarkable pass between two ranges of hills or mountains of rock, from 400 to 500 feet in height, which stretch along the valleys of the Six Mile and Cattatunk Creeks, nearly the whole length of the road; being, nevertheless, frequently broken and interrupted by deep ravines, formed by tributaries to the Cattatunk and Six Mile Creeks. The valley formed by the Beaver Meadow Brook and Six Mile Creek, and their tributaries, between the summit and Ithaca, varies in breadth from about 90 to from 1600 to 1700 yards, except at the falls about two miles southeast of Ithaca, where the water rushes through a chasm in the rock several hundred feet in length, and from forty to sixty feet in height and breadth. This valley consists of side-lying ground and rock, with sinuous and undulating surfaces of great acclivity, varying laterally from 10 to 100 feet in elevation, and is indented by deep and broad ravines, extending in most places from the foot of the mountain on either side, to near the bed of the Beaver Meadow and Six Mile Creeeks: and taken together, present formidable obstacles to the location of a railroad at a reasonable cost, with either *moderate slopes* or *gentle curves*.

The valley formed by the Cattatunk Creek and its tributaries, between the summit and Owego, is of a different character from that north of the summit; here the breadth of the valley increases as you proceed southerly as far as the village of Candor, at which place it has a breadth of from 4,000 to 5,000 feet; from this village southerly to within about two miles of Owego, the valley again decreases to a breadth of only 2,000 feet, and then opens into the valleys of the Owego Creek and Susquehanna River.

From the summit to Owego, a narrow slip of flat, or bottom land, may generally be found along the sides of the Cattatunk; it, however, is not always to be found on the *same side* of that creek. This creek has a tortuous course as it meanders through those flats—sometimes washing the foot of the rock on one side of the valley, and then again (almost immediately) deflecting abruptly across to the foot of the rocks upon the opposite side.

In addition to the obstacles thus presented to the location of this part of the road, in the vicinity of, or upon *any one side* of the Cattatunk, (without destroying its utility, by abrupt curves, or sacrificing the prospects of the stockholders by heavy cuttings, and high embankments, or grades of great acclivity,) it was found that this portion of the bed of the valley consisted in places of a succession of shelves, or tables of land, from ten to twenty and thirty feet above the flat or bottom land; these shelves in many places approach the creek, and in some instances form spurs of land; in other instances steep side-lying hills; and in many instances, the shelves or table land upon opposite sides of the Cattatunk nearly interlock, or pass by each other at abrupt turns of that creek, and thus present very formidable obstacles to straight lines, gentle curves, and grades.

In addition to the preceding obstacles to a good location at a moderate cost, a considerable part of the valley was in a high state of cultivation, covered with numerous buildings, which it was desirable should be saved if practicable.

After having made these reconnoissances, the small capital of the company to make this *great extent of road, over such a section of country*, admonished me that the utmost circumspection and care in the location, as well as in the choice of materials for the road, were indispensably necessary in order to insure a profitable investment of the stockholders' money.

Having stated the preceding facts to the Directors, (some of whom accompanied me along the whole route selected for this railroad,) and the difficulties connected therewith, they unhesitatingly concurred with me in opinion, as to the measures to be taken to obtain a good location, and thus enable me to make their road at a moderate cost: to obtain this object, they approved of the plan I recommended, viz.: not to make a final location of the road until every part of the valley had been thoroughly examined by surveys, and levels of sections run across it, at short distances apart; together with measurements of all the buildings, and other improvements, that might be in the way of a good location.

In accordance with this plan, a base line was surveyed and levelled from Ithaca to Owego, through the whole extent of the valleys of the Six Mile, Beaver Meadow, Cattatunk, and Owego Creeks; beginning at an iron bolt placed by myself in the wharf at the Inlet of the Cayuga Lake, at the ordinary level of that lake during the summer months. Lines were then surveyed and levelled, across the whole bed of the valley, at stations generally about five hundred

feet apart on this base line, and at right angles thereto; and in cases where it was judged needful for the purpose of obtaining a better location for the road, these surveys were farther extended to the foot of each hill.

In addition to the surveys and levels of these cross lines, every road, building, creek, and other object worthy of note, (and which, if practicable, were to be avoided in the final location of the road,) were measured, and the whole of the information thus obtained was laid down upon maps on a large scale; and all the elevations that had been taken of stations upon the base and cross lines, and of such other points as presented obstacles to the attainment of the best location, were written in figures at their proper places upon the same map.

Upon this map experimental lines and curves were projected with great facility during the winter season, and with as much certainty as could have been acquired by many surveys, levels, and examinations, made in the field: and in the spring these experimental lines and curves, from the summit of the road southerly to the Susquehanna River, (the lines and curves north of the summit having been previously laid out, and that part of the road put under contract,) being transited and levelled, fully tested the great advantage of the preliminary surveys and maps.

Although a good location for part of the road was thus obtained, yet in consideration of the small capital to be expended it was considered good economy to expend some time in making further examinations, in order to save expense where it was practicable to be done, in crossing and re-crossing the Cattatunk Creek, passing around spurs of hills, and ascending or descending from the shelves or table land found upon both sides of that creek.

The point of land projecting from the west hill, from the county line, 11 miles south-easterly from Ithaca, extends so far easterly as to leave only a valley 200 yards in width between it and the east hill, for the passage of the waters of the Cattatunk. As this point of land (the top of which is level for a considerable distance) lays directly across the track selected as the most eligible for the ground lying to the north and to the south of that place; and the table land upon its top was found so high above the low ground on each side of it, as to have required too great an expenditure of money in deep cutting and heavy embankments, to be adopted, it was therefore avoided by passing in the valley around the foot of that spur, with a curve of 7,000 feet radius, the valley not admitting of a longer curve.

The bend in the line at this place made it necessary to encounter deep cutting and heavy embankments through a low point of the east hill, near Mr. Lane's tavern, which projected into the swamp, north of the county line: or to apply one or more reverse curves to avoid it, in doing which, the line was again thrown upon upland requiring deep cutting and heavy embankments to the north of that place.

Various lines were run to avoid the deep cutting at Lane's hill, and after a careful examination of all of them, and of the infirm ground in the swamp north of that hill, it was found, that to make the best road, it would be the best economy to encounter that deep cut; the straight line crossing that hill has, therefore, been adopted.

This cut consists principally of gravel, and is 2,300 feet in length, with an average height of 14 feet, the greatest height being 21 feet.

By the aid of an economical plan of constructing dry walls to save the excavation of large slopes on the sides of the deep cut, the cost of this cut, including the great length of embankment to be made with this excavation at each end of the hill, will not much exceed the same length of road grade north of the summit.

Important savings to the company were also made by these re-examinations, aided by the maps before spoken of, by reducing the curves at the eastern and western spurs of hills near the village of Candor, the most northerly of which passed around the eastern point of the hill, at Booth's mill pond, near the junction of the northern and western branches of the Cattatunk Creek. This curve was reduced to 7,000 feet radius, to avoid crossing and re-crossing the northerly branch of that creek; but it became necessary, by such removal of the line, to cross the more rapid Shanandagan Creek near its junction with the Cattatunk, about one mile north of the mill pond.

To have avoided the crossing of the Cattatunk Creek, at Booth's mill pond, by passing around the foot of the high land at that place, and crossing the creek at the village of Candor, would have required too small a curve to be safe for cars passing that place under high velocities; in addition to which, a small curve at this place would have made it necessary to make another small curve at the village of Candor, attended with more cost in excavation and embankment, or in removing buildings, than the re-crossing of the creek at that village. A due regard to economy, and safety, recommended the adoption of the line that crossed the Cattatunk at the head of Booth's mill pond, upon a curve having a radius of 7,000 feet, and re-crossing that creek at Candor.

The next crossing and re-crossing places for the road over the Cattatunk, are at Chidsey's mill pond, eight miles north of Owego, which lies in crescent form, at the foot of a steep sideling hill of the same form, upon the *east* side of the Cattatunk, which is composed of hard pan, clay, and quick-sand, well known to be very expensive to excavate, and bad materials for a road. To have constructed the road along the *east* side of this pond, to avoid crossing and re-crossing it near this place, would not only have required a small curve along the pond, but another small return curve would have been necessary to get the road upon favorable ground for its continuance southerly. Such line would have been very expensive, even if no regard were had to the injury to be done to Mr. Chidsey, by passing through his mill yard, and thus damaging his property.

After crossing to the west side of the Cattatunk Creek at the head of Chidsey's mill pond, it was found impracticable to continue upon that side of the creek, with due regard to cost and to curves, on account of the ledges of rock, deep cuttings and heavy embankments, that must have been encountered at Robinson's mill pond, and Williams' hill.

These were avoided, by crossing to the east side of the Cattatunk below Chidsey's mill, re-crossing it to the west at Anderson's Island and Williams' hill, and again re-crossing the Cattatunk Creek, for the last time at Mr. Woodbridge's lane and bridge. The road embankment will, nevertheless, be slightly washed by this creek at three places to the south of this bridge.

The crossing at Anderson's Island, and re-crossing at Mr. Woodbridge's, were made necessary by the easterly course of the creek, from that island to a steep and crescent form of the east hill, composed of clay and quick-sand, or hard pan; and by the westerly course of the creek, on and near Mr. Woodbridge's land, until it again washes the foot of a steep west hill; along which it runs nearly to its junction with a rapid flood brook, from a valley of the westerly range of hills.

The line of road generally crosses the Cattatunk Creek with considerable obliquity, and some extra expense must be incurred, to pass the streams under the road, as nearly at right angles as practicable. It, however, crosses the Owego Creek, (about two miles from the village of Owego,) nearly at right angles.

This is considered the most difficult stream upon the line to pass in safety, and will require a heavy expenditure of money, as may be seen by the accompanying estimate of masonry, &c. The Cattatunk Creek, from Candor to Owego, being in times of freshets navigable for arks, the viaducts to be built across that stream must, of course, be elevated to such a height as to admit of their passing under them.

The road bridges, built across that creek by the inhabitants of the country, are from 9 to 12 feet above the level of low water, at those places. Several of them have been built for many years, and all of them have been found sufficiently elevated to admit of the passage of arks descending that stream.

When the prices of lumber and fuel, in the valley of the Cattatunk, are so much increased as to make it the interest of the inhabitants to clear off the hills, or mountains, bounding the valley of that creek; the rain and melted snow descending from those mountains without being checked in their passage by any vegetable growth, may be expected to increase the height of the floods in that creek; and of course to give that water an uninterrupted passage under the railroad, the height and length of the viaducts to be built across the creeks, must be increased beyond what might now be considered ample dimensions for them.

These increased dimensions for the viaducts, (of which there must be in number 8 small and 8 large ones, and together amount to from 960 to 1030 feet in length,) will considerably increase this item of expense in the construction of the road—not probably chargeable to *grading*.

The great abundance of building stone to be found in the neighborhood of the Cattatunk and Owego Creeks, will enable me, with good economy, to substitute abutments and piers of solid masonry, for wooden trussels, in building the viaducts across those creeks.

The superstructure of wood to be laid upon those abutments and piers, if made after the model exhibited, and recommended to your Honorable Board, will, it is believed, be sufficiently firm to admit the spaces between them to be increased to *forty feet*.

When these superstructures of wood decay, instead of replacing them with wood, they may be substituted by arches of solid masonry, by buiding an additional pier between each of those now to be erected.

From these reconnoissances, surveys, and examinations, it became manifest that the maps before mentioned (which comprised the elevations and improvements of the whole district of country deemed at all eligible for the location of your railroad) had enabled me, at a *very small cost*, to select for this road the *most gentle grades*, (the maximum rise being reduced to $21\frac{13}{100}$ feet per mile,) *curves of the greatest radii*, (being from 7,000 to 100,000 feet, except at the villages at the northerly and southerly terminations of the road,) *straight lines of the greatest length*, and a *route the most eligible* and *least costly* that the country would afford; and that, too, with *more certainty* of being the *best*, and at *much less cost* than it could have been done *without* these preliminary surveys and maps.

I now have the satisfaction of assuring your Honorable Board, that the whole road is located, (except about one mile at the village of Owego, which has been omitted at the request of some of the Directors,) and that it is my firm and honest conviction, that by the above mentioned mode of proceeding in making the preliminary surveys and maps, I have obtained the *most eligible routes, grades* and *curves* the most *gentle*, with straight lines connecting them of the *greatest length* that the country would afford; and that the cost of constructing the road (taking into consideration the natural obstacles to be overcome) will be found unusually small, and *much less* than could have been reasonably anticipated, by any person having only the slightest claim to experience in works of this kind; and further, that the plan and location which has been adopted, will save to the stockholders in the construction of their road, a sum of money amounting to *at least one third* of the whole cost of grading it; and that the amount of work to be done upon it is so reduced, as also to save one year in the time required for its construction, when compared with the best location that could have been obtained *without* the aid of those preliminary surveys and maps.

It affords me much pleasure, gentlemen, to be assured that your Honorable Board appreciate the savings thus made by me; and to know that you have done me the kindness, as well as the justice, to award me your unanimous approbation.

Preliminary Surveys and Experimental Lines, preparatory to the final location of the Inclined Planes at the Ithaca Hill.

One of the most formidable obstacles that has presented itself in the location of this railroad, is the great elevation of the ground at the summit between Ithaca and Owego, over which the railroad had to be taken; and the unfavorable situation of the land and rocks between that summit and the Ithaca flats.

This summit, as before mentioned, lies 8½ miles south-easterly from the village of Ithaca, and is 596 feet above the level of the Cayuga Lake at its summer height.

The Ithaca flat is about one mile in breadth between the Inlet bridge and the foot of the hill bounding it to the south; the greatest elevation that could be obtained (at a moderate cost) for the road at the foot of that hill, by building it upon embankment from the Inlet to that place, did not exceed 12 feet above the level of the lake; which being taken from the elevation of the swamp at the summit, (596 feet,) left an elevation of 584 feet between the Ithaca flats and the summit swamp, to be overcome in a distance of 7½ miles, by locomotive or stationary power; and amounts to an average rise of 78 feet per mile for this whole distance; which is a greater ascent than has yet been overcome by locomotive engines, constructed upon the most improved plan.

The valley of the Beaver Meadow and Six Mile Creeks was, upon examination, found to present insurmountable obstacles to the attainment of this grade, for this part of the road, within the means of the company's funds; it, therefore, became needful to resort to stationary power to overcome so much of this elevation as could not be attained, by applying to the ground between the inclined plane and the summit, an uniform or undulating grade, within the *maximum* ascent fixed upon for the whole of the road, (except the inclined plane,) viz.: $\frac{4}{10}$ of a foot rise to 100 feet of base, or $21\frac{12}{100}$ feet per mile.

An experimental line was run from the summit northerly, on a grade descending *uniformly*, at the rate of $\frac{5}{10}$ of a foot base, to 100 feet of perpendicular rise, or $26\frac{4}{10}$ feet per mile, as far as it could be done with any prospect of success; this line and grade was found to be *ineligible*.

Numerous other lines and grades along both sides of the valley of the Six Mile Creek, as well as along the Cattatunk, were also examined; from all of which it was found to be impracticable, at a reasonable cost, to obtain a good location upon a *level line*, or upon one of *uniform descent*, either from the summit, any considerable distance southerly towards Owego, or northerly to the head of the inclined plane at Ithaca; and that an *undulating line must, of necessity*, be adopted for a considerable part of the whole route; it was, therefore, deemed most expedient to adopt an *undulating line of gentle grade*, (the *maximum* grade to be $21\frac{12}{100}$ feet per mile, or $\frac{4}{10}$ of a foot rise to 100 feet of base,) in all cases where it would insure a saving to the company.

A good location for the road, over a considerable portion of the section of country lying between the summit swamp and the Ithaca hill, could have been obtained upon the *east* side of the Six Mile Creek, by encountering heavy cuttings and embankments near the mills upon that stream, and by applying to it an inclined plane and stationary power to overcome about 110 feet of elevation near the junction of the Beaver Meadow Brook with the Six Mile Creek, (about five miles south-easterly from Ithaca,) in addition to the inclined planes that must of necessity have been made in the neighborhood of Ithaca, to overcome so much of the remaining elevation between the foot of that plane (five miles from Ithaca) and the Ithaca flats, as could not be overcome by grading the road to its *maximum* ascent.

The great cost of making a road upon *this side* of the valley of the Six Mile Creek, together with the liability of increased inconvenience and damage, both to the merchant and to the company, from accidents and detention at an inclined plane such a distance (five miles) from the nearest market or village; when compared with a route that could be obtained at a *less cost* upon the west side of the valley, without being compelled to resort to stationary power at any place, except at the Ithaca hill; where all the stationary power required for the whole road could be located at one place, and that, too, within less than half a mile of the village of Ithaca, and only about one mile from the navigable waters of the Cayuga Lake, gave advantages for the line on the *west* side of the valley of the Six Mile Creek, which could not be obtained for any line on the *east* side or in the *bed* of the valley of that creek: the *west* side of the valley of the Six Mile Creek was, therefore, selected as *the most* eligible for the location of the road.

After having, by means of the preliminary surveys before mentioned, found that the *west side* of the valley of the Six Mile Creek was the *most eligible* for the location of the railroad, further examinations of the ground upon that side of the valley were thereupon made, and the *most eligible line and grade* for the road, between the summit swamp and the head of the proposed inclined plane at Ithaca, was found to be between the elevations of 450 and 600 feet above the level of Cayuga Lake.

The most eligible route for 6½ miles of the road north of the summit, (and extending to the table land, near the top of the Ithaca hill, and within one mile of the Ithaca flats,) being thus brought to within such narrow limits, the next point to be attended to was the definitive location of this part of the route, and of the inclined plane to connect it with the road to be located upon the Ithaca flats.

The elevation of the summit swamp being, as before stated, 596 feet above the level of the Cayuga Lake, and the *maximum* grade for the road being fixed at $21\frac{12}{100}$ feet descent per mile; it follows, of course, that if the ground would have admitted of the application of this maximum grade for the whole distance of 6½ miles, from the summit northerly to the head of the inclined plane, near Ithaca; that then the above elevation would have been thereby reduced $137\frac{28}{100}$ feet, and left the head of the plane only $458\frac{72}{100}$ feet above the level of the Cayuga Lake; if from this, the height of embankment (12 feet) made for the road bed at the foot of the inclined plane be taken, there would have still been left an elevation of $446\frac{72}{100}$ feet to be overcome by stationary power, which is $64\frac{28}{100}$ *less* than that of the line adopted.

But the ground between the head of the plane and the summit, along the line traced by this grade, was, upon examination, found to be *ineligible for a good location*, and it of course was rejected. Various other experimental lines and grades were applied to the ground lying between the summit and the head of the inclined planes, of which the one hereinafter described, being found the *most eligible route*, both as to *line* and to *grade*, that this section of the country would afford, it was adopted.

[*To be continued.*]

We have already informed our readers, says the Petersburg Intelligencer, of September 2d, of the completion of the Railroad between this place and Blakely, on the Roanoke. The arrangements for carrying the main Southern mail and passengers are now in full operation. As this road has become a very important link in the chain of communication between the North and the South, we have obtained from a friend, for the information of travellers, the following statement of the advantages:

"The mail and passengers are now transported, by aid of the Railroad, between Petersburg and Fayetteville, in 36 hours—distance 219 miles—from this town to Baltimore, by the way of Norfolk, by steamboats, in 28 hours; by the way of Washington, in 32 hours; from Baltimore to Philadelphia, in 9 hours; making the whole time taken in travelling from Fayetteville, N.C., through Petersburg to Philadelphia, but 73 hours—and such is the arrangement of the line, that the passengers are not disturbed of their rest but *one night*. The road from Blakely to Fayetteville is known to be one of the best in the Southern States, and the horses and coaches first rate. We are not aware that any route of communication from the South to the North presents as many comforts and convenience to the traveller as the above."

Brooklyn and Jamaica Railroad Company.—At a late meeting of the Directors of this Company, the following gentlemen, viz., John A. King and Nathan Shelton, of this village, Charles Hoit and Samuel Smith, of Brooklyn, and Abner Chichester, of New-York, in conjunction with Mr. Douglass, the Engineer, were appointed a Committee to determine upon and locate the route of the Railroad, and to make the preliminary arrangements for carrying into operation the plans of the Company. The committee are to enter upon their duties next week, and no doubt will soon make such arrangements as will justify the immediate construction of the proposed road.—[Long Island Farmer.]

Railroads and Locomotive Engines—*Rapid and Easy Mode of Travelling.*—We are indebted to an esteemed friend for the following communication. The writer is a gentleman of much experience and observation upon the subject under consideration, having visited Europe for the purpose of becoming familiar with the Railroads, and other works of internal improvement, in use and in progress there, and, since his return, successfully engaged in the construction of Locomotive Engines.

He need not fear of extending his communication upon the subject beyond our limits, or desire for publication, nor of being too minute in his detail, for he will please recollect that the object of this Journal is to give such information as will make the subject *better understood*—by the great mass of this community—and in no way can this object be so well attained as by giving minute descriptions, with engravings of every part and mode of construction of Railroads and Railroad machinery. We, therefore, make him, and others similarly engaged, who will furnish us with descriptions and drawings of *whole* or *parts* of machines now in use, or of *improvements* upon them, or of *new inventions* for rails or machinery, which may tend to this object, a place in the Journal, and the engravings to be made at our expense.

New-York, September 9, 1833.

Dear Sir,—Agreeably to your request I herewith send you a few extracts from memoranda taken during a late visit which I made to several of the most important railroads in the country, with a view of examining the different locomotive steam engines, in order to ascertain their practical effects on the several roads, and to collect and compare such facts connected with the subject as might fall under my observation. Hoping the few general extracts which I have made may interest some portion of your readers, I am, very respectfully, yours,

E. L. Miller.

The first road I visited was the Mohawk and Hudson, extending from Albany to Schenectady, a distance of 16 miles. Of this distance their locomotive engines work 12 miles.

The John Bull, an English engine, has been at work upon this road with perfect success since October, 1831. From the great weight upon her driving wheels, she was found to injure the road, and during the last winter she was put upon six wheels, after the plan adopted by J. B. Jervis, Esq. in the locomotive "Experiment," which had been fully tested the past year on the same road. They still do a part of the work on this road, with horses, and in order to compare more accurately the expense of horse and steam power, Mr. Whitney, their intelligent superintendant, informed me that he had the last spring opened an account with each, and found the result to be as 3 to 5, in favor of steam, and this where wood is worth from four to five dollars per cord.

The Saratoga road connects this road with the village of Saratoga, and is 22 miles in length. This road was opened for travel in July, 1832. The first locomotive engine commenced her regular trips in June last, and has since continued to work in the most satisfactory manner. She is called the Saratoga, burns coke, is a six wheel engine, and taking into view the ease with which she works upon, and the little injury she does the road, I consider her the best engine I have seen.

The next road in course was the Camden and Amboy, which has one track laid to Bordentown, 36 miles. It is constructed after the English plan, with Mr. R. Stevens's improved iron rails and that part of the track which has been recently laid, has a better surface than any railroad I have ever seen, either in this country or in England. Passengers are still carried on this road by horses, 180 of which, I am informed, are required to perform the business 36 miles. Arrangements are making to convey passengers by steam, which will be completed in a short time. Three or four engines are already on the road, and as many more nearly in readiness. I saw one of these conveying materials for construction, and was much pleased with the power she exhibited to overcome ascents with her load.

I next visited the Philadelphia and Germantown road, 6½ miles of which are completed and traversed by two locomotive engines, both of which were constructed in this country. The one constructed by Mr. M. W. Baldwin, of Philadelphia, has performed for five or six months in the most satisfactory manner. Mr. B. has introduced some simplification of the usual plan, of working the valve, gear, and reverse, by hand, which gives that part of his engine a decided preference over most of the English engines.

The grade of the road is very unfavorable for this kind of power, having an average ascent of 35 feet per mile, on which are several very abrupt curves. And here I cannot but observe how important it is in constructing a railroad, where the locomotive engine is designed to be used, that no *reasonable pains or expense should be spared* to bring both the *grade* and *line* of the road within the *effective power* of that useful machine. To illustrate this, the engine constructed by Mr. Baldwin would lead seven or eight cars, on a level and straight road, with as great ease as she carries three cars up this road.

The Newcastle and Frenchtown road was next in my way. This road is 16 miles in length, and has been completed and worked with the locomotive engine for the last eighteen months. They have at present four engines on the road, all constructed by R. Stephenson, Newcastle, England; and, with the exception of one, they have worked very satisfactorily. Mr. Young, a very intelligent and practical engineer, who has charge of the engines, informed me that they had lost but two or three trips since they commenced running them. I was much pleased with the organization and police of this road. I passed in company with about a hundred passengers, and the whole time of transshipping them with their baggage, from the steamboat to the cars, to the time we were under-way on the road, did not exceed five minutes, and an equally short period in again transshipping to the boat at the other end of the road. The engine had eight cars in train, and occupied 63 minutes in crossing. The grade of this road is very favorable for this kind of power, the whole being within 16 feet per mile, with the exception of a few yards at each end.

The Baltimore and Susquehanna Railroad is completed, and worked by an engine, 16 miles from Baltimore, passing in almost its whole extent through a very broken and undulating country. The greater part of this road ascends at the rate of 10 feet per mile, and is a continued series of curves, ranging from 400 to 1000 feet radius, and many of these occurring in the ascents. It is consequently a very unfavorable road for the locomotive engine. They have an engine on this road, which burns coke, and was originally on four wheels, by which arrangement it was found impossible to pass the curves, when she was put upon six wheels, similar to the Saratoga, except that her furnace is outside the driving shaft. She is an engine of great capacity, and her weight on the driving wheels has injured both the wooden rail and the iron, very materially. Yet notwithstanding the very bad order of the road, she carried a train of seven cars, round the most abrupt curves, at a speed of eight or ten miles per hour.

The Baltimore and Ohio road has been so frequently described that I shall only refer to the motive power used upon it, which, for the most part, is animal. They have an engine which they work upon the road part of the time. This is a geared engine, communicating her power to the main shaft by a spur wheel. The principal merit of this engine is her success in generating steam with anthracite coal, which is certainly more satisfactory than any thing I have heretofore seen, and fully confirmed my previous opinion, that this fuel will eventually be used for the transportation of passengers, in all cases where it can be obtained at fair rates. The Baltimore Company feel confident of success with this kind of fuel, and have contracted for two or three engines adapted to its use.

The last object of my tour was the Petersburg and Roanoke Railroad, in Virginia. This road is now completed from Petersburg to the Roanoke, a distance of about 60 miles. The grade of the road, with the exception of two or three planes, with an ascent of 27 to 30 feet per mile, is very favorable to the use of the locomotive engine; and their success with this kind of power has not been surpassed in the country. They have now three engines upon the road, a part of which have been at work upwards of nine months, and made their trips with as much regularity as could have been expected from horse power. One of these, the "Liverpool," is probably, for her weight, the most effective engine in the country. This, and one of the other engines on this road, were constructed by Mr. Burry, of Liverpool, who has also furnished two engines for one of the Schuylkill railroads, which I am informed work equally well. The proprietors of this road consider it as part of the great line of communication from north to south, and look to its ultimate connection with the Charleston Railroad, by similar works, through North Carolina.

The opening of the Charleston Railroad to Augusta, which is advertised for the first of October next, in connection with the two lines of steamboats now being established between New-York and Charleston, and between Norfolk and that city, will, with the exception of the short distance from Augusta to Montgomery, complete the facilities of the great line of communication from Boston to New-Orleans, and I venture to predict that, before the expiration of three years, the mail will be transported from this city to New-Orleans in the short space of eight or nine days; and that to avoid the rigors of a northern winter, a trip to the sunny regions of the south will soon become as common as the visits from that quarter to the north are in the summer.

Fearing I have already extended my remarks to a tiresome length, I will not trouble you with a detail of the measurement and proportions of boilers, engines, &c. but cannot refrain from assuring you, that although I was one of the earliest and most strenuous advocates* in this country for the introduction of railroads, and the use of steam as a motive power, the result of all my observations during my journey has more than confirmed the most sanguine hopes I ever entertained of their success.

But the most gratifying part of the details—and that which, as an American citizen, and a member of this great republic, most flatters my vanity—is the proud recollection that the whole of this trip, from the city of New-York to Saratoga, from Saratoga to the interior of Virginia, near the North Carolina line, and thence again to this city, making the distance travelled more than 1500 miles, was performed by railroad and the splendid steamboats which ply on the noble waters of the Hudson, Delaware, Chesapeake Bay, and James river, without any *fatigue* or *sacrifice* of *personal comfort, in the short space of nine days*, including a detention of 96 hours, or four days, at the different places I visited, making the travelling time but *five days* for the *whole distance*.

Yes, Mr. Editor, I think every American citizen may justly feel proud, when he reflects on the rapid progress of these facilities of internal communication, which are so rapidly springing up on every side, and intersecting our country from north to south, and from east to west, forming the great avenues of intercourse with every part of our extended confederation, and which alike strengthen the bonds of our happy union, and give an additional guarantee for the stability and permanency of our government and institutions.

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* I never believed in the practicability of a railroad to the moon—never thought railroads could be worked and kept in repair without great expense; or that, if constructed where there was no business, they would pay large dividends.

Lime.—This is a simple mineral, or a letter in the geological alphabet, and a rock scattered very extensively and in vast deposits over the face of the globe.

Lime appears under a greater variety of color, texture and form, than any other rock. There are probably two hundred varieties of marble, all, or nearly all of which, are lime. Chalk, with the endless and boundless deposits of the more common limestone, is composed of the same elements. It crystalizes into numerous forms. Calcareous spar, with rhombic sides, is one form; a six sided prism is another; and several others might be named.

Lime exists in exhaustless abundance in almost every country. In many places it is the most common and almost the only rock.

No rock perhaps differs so much in its age, or in the periods in which the different deposits were formed. The oldest limestone was formed before the most recent granite. The most recent deposits are at this time accumulating; so that the formation of limestone has been constantly going on for nearly six thousand years at least, consequently some specimens are about six thousand years old, and perhaps much more, while others have not completed their first year.

The uses of lime are very numerous and very important. In many places it is the common and only material for the walls of houses, the enclosures of farms, &c., and in every place is esteemed for the finest architectural work. It is the most common material for statuary work, and carving of various kinds.

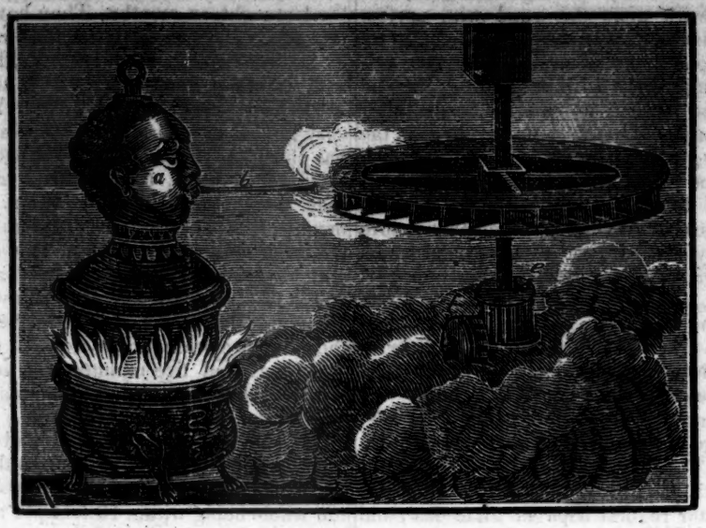
For the interior walls of houses, or for plastering rooms, &c., it is nearly indispensable. Some specimens are of great value for water cements, as they cement the masses of stone in a wall so as to be water tight, and even grow hard under water. This is called hydraulic, or water lime.

Lime when burned has something of an alkaline property, like potash or soda, and is used as a substitute for them. It is used as a flux, or an aid in melting, in the manufacture of the coarser kinds of glass, and in the smelting of iron. It is also used as a medicine.

Upon soils which do not contain a portion of lime, it is a valuable manure. It may be burnt and slacked, or pulverized otherwise, and applied to the land. Marl, which is lime commonly mixed with clay and sand, owes its value as a manure to the lime it contains.

The simple elements of lime are fewer in number than those of the rocks before named. The only elements which compose pure limestone, are oxygen, calcium, carbon, and usually a little hydrogen. Burnt lime is little else than oxygen and calcium; lime in the quarry has oxygen and carbon, or carbonic acid with a little water, or oxygen and hydrogen are added. In the process of burning lime, the carbonic acid and water are driven off, so as to reduce it from a carbonate and hydrate to pure lime, which is oxygen and a metal called calcium.

Inflammable Spring.—In the township of Wales, 15 miles from Buffalo, near the bank of a small stream, there issues from a ledge of slate rock a stream of air, which, on the application of a torch, takes fire, and continues to burn till it is extinguished by the rising of the water of the rivulet. The flame is about 6 inches in length, and 2½ in diameter.

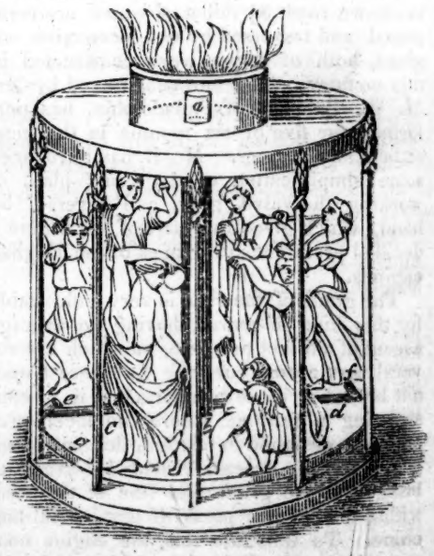


First Application of the Power of Steam to a Useful Practical Purpose.—The first person in modern times who applied the expansive power of steam on any scale to a useful practical purpose, was Giovanni Branca, an eminent Italian mathematician, who resided at Rome in the beginning of the seventeenth century. His contrivance was an œlipile, from which steam issued upon a wheel formed with float-boards or vanes, like a water-wheel or wind-mill, and thus produced a rotatory movement. This wheel, by some intermediate mechanism, gave motion to the stampers of a mill for pounding drugs. The above figure is copied from that given by Branca to explain his invention; but it must be considered only as an ornamental and picturesque illustration of the principle by which he produced the moving power in his stamping-mill; not as a view of any part of the machinery which was actually constructed. *a* is a boiler in the shape of a negro's head. *b*, a pipe proceeding from it, which conducts the steam upon the vanes or boards of a wheel, *x*. Other wheels, *e*, *f*, are attached in the usual manner to communicate the motion in the required direction.*

It is on account of this contrivance that Branca is considered by his countrymen to be the inventor of the steam engine; and even in a recent English work† on this subject, he is allowed the merit of a *first idea*. To this he certainly has no claim; neither can his engine be compared with Hero's for its ingenuity, nor to De Caus's for its efficiency. Besides, long before this period, the same mechanism was described by Cardan, as moved by the "vapor from fire." And the mere substitution of steam by the Italian philosopher is not so original or important, as to give to the transition the rank of an invention. Branca was, however, a man of much ingenuity, and many of his machines are highly creditable to his abilities as a scientific mechanic.

The elasticity of the vapor of water, which had long been known to philosophers, but to them only, had now become familiar to water-work artists; and in their hands it was applied in a variety of ways to their favorite problem of raising water above its level in jets and fountains. Without vouching for the great effects said to be produced by these machines, we will describe two, as necessary to give a clear notion of the value of these conceits, and as specimens of the ingenious absurdities, which, under the name of *Air Engines*, were recommended even by experienced engineers about this period. The machines themselves, under another form, are to be found in the *Spiritalia*. The book from which they are extracted in their present shape was one of some reputation in its day, and many years after its publication it was thought worthy of being translated into English. The translation went through two editions.*—[Stuart.]

The engraving in the preceding page is one descriptive of the first *useful* application of steam. We shall now introduce to the notice of our readers a description of the first recorded observation of its application to produce motion, and although it must be considered as a mere toy, its introduction in our pages will, we hope, not be considered out of place.



First Application of Steam Power.—Although the elastic power of the vapor of water must have been familiar to man from the earliest period of his history, the first

* Branca's account of his contrivance is contained in a folio volume of machines, which he dedicated in 1628 to a M. Canci, Governor of Loretto. It was published at Rome in 1629, under the title of "Le Machine Diverse del Signior Giovanni Branca." Our engraving is contained in Plate XXV of that collection.

† Partington's Historical Account of the Steam Engine. London, 1822.

* "New and Useful Inventions for Water Works: a work both useful and delightful for all sorts of people; translated into English by John Leak." The plates appear to have been those used in the French edition.

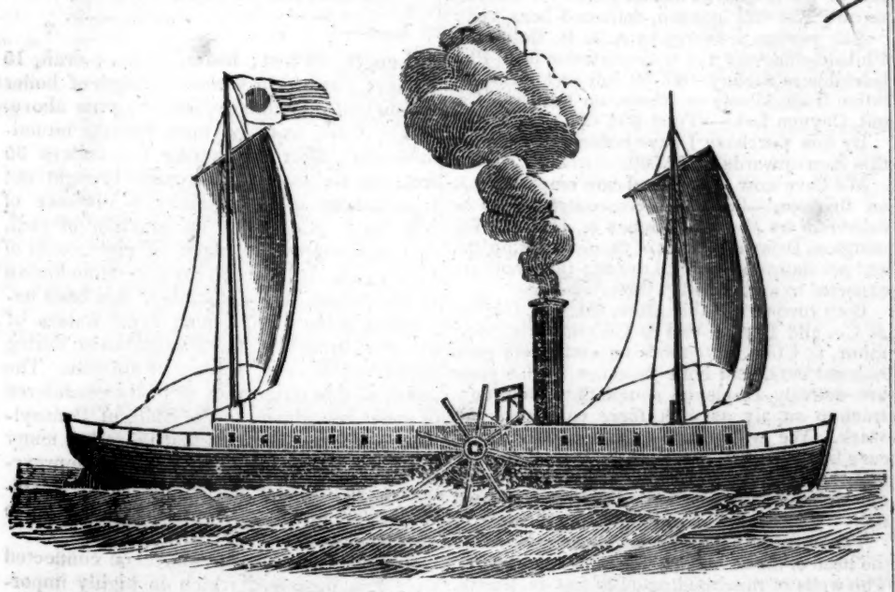
recorded observation of the fact, and the application of steam to generate motion, appear to have been made by a Greek mechanic, about one hundred and thirty years before the Christian era.

Hero the Elder, who flourished at Alexandria in the reign of Ptolemy Philadelphus, was eminently distinguished in that age and region of refinement, not only for the extent of his attainments in the learning of the time, but also for the number and ingenuity of his mechanical inventions. In one of his books, he deduced all the laws of what are called the mechanical powers from the properties of the lever. His *Spiritalia*, or Pneumatica, contains the first account of the forcing pump: of a fountain, still known by his name, in which water is elevated in a jet by the elasticity of condensed air. Among other contrivances in the same treatise, he describes two machines of his invention; in one of which a rotatory motion is produced by the emission of heated air; and a similar movement is imparted to the other by the reaction of vapor rising from boiling water.

A pipe, *a*, is directed by Hero to be inserted under the hearth of an altar, on which a fire is burning. This pipe, placed in a vertical position, is moveable on a pivot, *b*, resting on the base of the altar. Two other pipes, *c*, *d*, of smaller diameter, proceed from the vertical one in a horizontal direction, having their extremities, *e*, *f*, open and turned upwards. A base or drum, *g*, is attached to the pipes, on which are placed small figures in various attitudes. The air at the upper extremity of the vertical pipe being heated by contact with the under side of the altar hearth, is expanded, and descends into the pipe, and proceeding along the horizontal arms is expanded, at their orifices, *e*, *f*. This causes them to revolve round the pivot *b*, so that the figures which are placed on the base *g*, are carried around with and appear "to lead the dance, as if they were animated beings."

It is scarcely necessary to notice the identity of this elegant apparatus with that of Barker's mill; and that the rotatory motion would be produced, as stated by Hero, though not by the *emission* of *warm*, but through the *admission of cold* air at the orifices in the horizontal arms, in consequence of the rarefaction at the upper end of the vertical pipe under the hearth of the altar. —[Stuart.]

In addition to the foregoing descriptions of the "First Application of Steam," and the "First Useful Application of it," we now insert a cut of Mr. Fulton's first boat, (the *North River, or Clermont,*) which we copy from a drawing made by himself, and which may be considered as descriptive of the *first successful application of steam in navigation.*



The following boats were built under the superintendance of Fulton, or according to his plan, during his life-time:

	Names.	*Tonnage.*	*Where employed.*
1806	North River, or Clermont	160	Hudson river
1807	Rariton	120	Rariton river
1807	Car of Neptune	295	Hudson river
1811	Paragon	331	Hudson river
1812	Fire-Fly	118	From New-York to Newburgh
1812	Jersey Ferry Boat	—	Ferry Company
1813	Richmond	370	Hudson river
1813	Washington	275	Potomac river
1813	York Ferry Boat	—	Ferry Company
1813	Nassau Ferry Boat	—	Brooklyn Company
1813	Fulton	327	Long Island Sound
1814	Fulton the First	2475	Navy Yard
1816	Olive Branch	—	Between New York & New Brunswick
1816	Emperor of Russia	330	Undetermined
1816	Chancellor Livingston	526	Hudson river.

For a description of Mr. Fulton's first trip, see Vol. II. page 291, of the Railroad Journal.

Since the above was in type, Captain Davis Hunt, who was the commander of the boat, has seen the engraving, and pronounces it correct in every particular.

Babbage on the Economy of Manufactures.

[Continued from page 553.]

214. Another event which has arisen, in one trade at least, from the employment of large capital, is, that a class of middle-men, who were formerly interposed between the maker and the merchant, now no longer exist. Formerly, when calico was woven in the cottages of the workmen, there existed a class of persons who travelled about and purchased the pieces so made, in large numbers, for the purpose of selling them to the exporting merchant. But the middle-man was obliged to examine each piece, in order to know that it was perfect, and of full measure. Now, although the greater part of the workmen might be depended upon, yet the fraud of the few would render this examination indispensable: for the value of character, though great in all circumstances of life, can never be so fully experienced by persons possessed of small capital, as by those employing much larger sums. Any single cottager, if he were detected by one purchaser, might hope that the fact would not become known to all the rest; whilst the larger the sums of money for which any merchant deals, the more is his character for punctuality studied and known by others. Thus it happens that high character supplies the place of an additional portion of capital; and the merchant, in dealing with the great manufacturer, is saved from the expense of verification, by knowing that the loss, or even the impeachment, of the manufacturer's character, would be attended with greater pecuniary detriment to himself than any profit upon any single transaction could compensate.

215. To such an extent is this confidence in character carried, that, at one of our largest towns, sales and purchases on a very extensive scale are made daily in the course of business without any of the parties ever exchanging a written document. The amount of well-grounded confidence, which such a practice indicates, is one of the many advantages an old manufacturing country always possesses over its rivals.

216. A breach of confidence of this kind, which might have been attended with very serious embarrassment, occurred in the recent expedition to the mouth of the Niger.

"We brought with us from England," Mr. Lander states, "nearly a hundred thousand needles of various sizes, and amongst them was a great quantity of '*Whitechapel Sharps*,' warranted '*superfine, and not to cut in the eye.*' Thus highly recommended, we imagined that these needles must have been excellent indeed; but what was our surprise, some time ago, when a number of them which we had disposed of were returned to us, with a complaint that they were all eyeless, thus redeeming with a vengeance the pledge of the manufacturer, 'that they would not cut in the eye.' On an examination afterwards, we found the same fault with the remainder of the 'Whitechapel Sharps,' so that to save our credit we have been obliged to throw them away."*

217. The influence of established character in producing confidence operated in a very remarkable manner at the time of the exclusion of British manufactures from the Continent during the last war. One of our largest establishments had been in the habit of doing extensive business with a house in the centre of Germany; but, on the closing of the continental ports against our manufactures, heavy penalties were inflicted on all those who contravened the Berlin and Milan decrees. The English manufacturer continued, nevertheless, to receive orders, with directions how to consign them, and appointments for the time and mode of payment, in letters, the handwriting of which was known to him, but which were never signed, except by the Christian name of one of the firm, and even in some instances they were without any signature at all. These orders were executed; and in no instance was there the least irregularity in the payments.

218. Another circumstance may be noticed, which to a small extent is more advantageous to large than small factories. In the export of several articles of manufacture, a drawback is allowed by government, of a portion of the duty paid on the importation of the raw material. In such circumstances, certain forms must be gone through in order to protect the revenue from fraud; and a clerk, or one of the partners, must attend at the custom-house. If the quantity exported is inconsiderable, the small manufacturer frequently does not find the drawback will repay him for his loss of time; whilst the agent of the large establishment occupies nearly the same time in receiving a drawback of several thousands, as the smaller exporter does of a few shillings.

219. In many of the large establishments of our manufacturing districts, substances are employed which are the produce of remote countries, and which are, in several instances,

* Lander's Journal of an Expedition to the Mouth of the Niger, volii. p. 42.

almost peculiar to a few situations. The discovery of any new locality, where such articles exist in abundance, is a matter of great importance to any establishment consuming them largely; and it has been found, in some instances, that the expense of sending persons to great distances, purposely to discover and to collect such produce, has been amply repaid. Thus it has happened that the snowy mountains of Sweden and Norway, as well as the warmer hills of Corsica, have been almost stripped of one of their vegetable productions, by agents sent expressly from one of our largest establishments, for the dying of calicoes. It is owing to the same command of capital, and to the scale on which the operations of a large factory are carried, that their returns will admit of the expense of sending out agents to examine into the wants and tastes of distant countries, as well as of trying experiments, which, although profitable to them, would be ruinous to smaller establishments possessing more limited resources.

These opinions have been so fully expressed in the Report of the Committee of the House of Commons on the Woollen Trade, in 1806, that we shall close this chapter with an extract, in which the advantages of great factories are summed up.

"Your Committee have the satisfaction of seeing that the apprehensions entertained of factories are not only vicious in principle, but they are practically erroneous; to such a degree, that even the very opposite principles might be reasonably entertained. Nor would it be difficult to prove that the factories, to a certain extent at least, and in the present day, seem absolutely necessary to the well-being of the domestic system; supplying those very particulars wherein the domestic system must be acknowledged to be inherently defective; for it is obvious, that the little master manufacturers cannot afford, like the man who possesses considerable capital, to try the experiments which are requisite, and incur the risks, and even losses, which almost always occur, in inventing and perfecting new articles of manufacture, or in carrying to a state of greater perfection articles already established. He cannot learn, by personal inspection, the wants and habits, the arts, manufactures, and improvements, of foreign countries; diligence, economy, and prudence, are the requisites of his character, not invention, taste, and enterprize; nor would he be warranted in hazarding the loss of any part of his small capital. He walks in a sure road as long as he treads in the beaten track; but he must not deviate into the paths of speculation. The owner of a factory, on the contrary, being commonly possessed of a large capital, and having all his workmen employed under his own immediate superintendance, may make experiments, hazard speculation, invent shorter or better modes of performing old processes, may introduce new articles, and improve and perfect old ones, thus giving the range to his taste and fancy, and thereby alone enabling our manufacturers to stand the competition with their commercial rivals in other countries. Meanwhile, as well worthy of remark, (and experience abundantly warrants the assertion,) many of these new fabrics and inventions, when their success is once established, become general among the whole body of manufacturers; the domestic manufacturers themselves thus benefitting, in the end, from those very factories which had been at first the objects of their jealousy. The history of almost all our other manufactures, in which great improvements have been made of late years, in some cases at an immense expense, and after numbers of unsuccessful experiments, strikingly illustrates and enforces the above remarks. It is besides an acknowledged fact, that the owners of factories are often amongst the most extensive purchasers at the halls, where they buy from the domestic clothier the established articles of manufacture, or are able at once to answer a great and sudden order; while, at home, and under their own superintendance, they make their fancy goods, and any articles of a newer, more costly, or more delicate quality, to which they are enabled by the domestic system to apply a much larger proportion of their capital. Thus, the two systems, instead of rivalling, are mutual aids to each other; each supplying the other's defects, and promoting the other's prosperity."

Ithaca and Owego Railroad.—We are indebted to Richard Varick De Witt, Esq., for the following letter from the Engineer in Chief, showing a most satisfactory state of things as regards this important work:

Ithaca, September 5, 1833.

Dear Sir,—The work upon the Ithaca and Owego Railroad is rapidly advancing to completion. The grading of upwards of half the length of the road is prepared for laying the railway, and the grading of the remaining 28¾ miles in length of road is expected to be completed in the month of November, except some deep cuttings, &c. amounting together to about a mile and a half, which is not expected to be completed till January. Nothing has yet transpired to change the opinion I gave you some time ago, viz.: that we expected to have the railway ready for use, the whole distance from Ithaca to Owego, by the beginning of March next—and what must be equally interesting information, that the 28¾ miles of single track, and 5 miles of sidelings and turn-outs, will be completed for use for the $300,000 capital of the company.

We are now laying down nearly a mile of railway per week. All the railroad iron for our road (750 tons) is purchased, and a large portion of it has arrived at this place. It has cost us only $54 62½ per ton, delivered here, viz.:

$45 per ton delivered by A. & G. Ralston at Philadelphia—$2 12½ transportation from Philadelphia to Albany—$7 50 toll and transportation from Albany to Ithaca, on the Erie Canal, Cayuga Lake—Total $54 62½.

By this purchase I have reduced the cost of this item upwards of $2,500.

We have now 20 railroad cars employed upon this road—30 more have contracted to be delivered by Messrs. Bonney & Co., of Wilmington, Delaware. Part of them were shipped, and are daily expected to arrive; the whole are expected to arrive within three weeks.

Both furnaces at this place, (Messrs. Conrad & Co. and Dennis Vail & Co.) and Mr. Seymour, at Utica, have made us some very good railroad cars, and both furnaces at this place are actively employed completing their contract to supply us with *three* cars *each* per week. We will probably have from 70 to 80 cars in use upon the road in less than two months. Eight cars are now employed upon the inclined plane removing the rock excavation.

The stone building for the engine house at the head of the first plane has been commenced. The walls of this building (120 feet in length, 60 feet in breadth, and 30 feet in height) are to be completed by the last of November. The stone delivered at the building will cost us only from 50 to 62½ cents per perch. Upwards of one-third of the whole quantity wanted for the building has been obtained from the road excavations.

The country is perfectly healthy—there is no sickness among the workmen. Board is cheap.

The present force upon the road, including laborers, carpenters, masons, and other mechanics, amounts to upwards of one thousand, and is daily increasing.

The present wages for laborers is from 13 to $14 per month and found. Carpenters from $1,25 to $1,50 per day. Masons from $1,25 to $1,75 per day. Two-horse wagons $2,00. And one-horse carts $1,50 per day.

We expect to transport next spring, across our railroad, a large amount of articles to the Philadelphia and Baltimore market by the way of the Susquehanna river, before the Erie canal is free from ice.

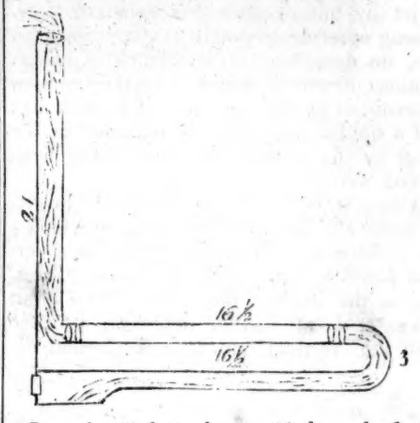
Very encouraging offers have already been made to us, by forwarding agents, to transport plaster, timber, &c. across our road next winter and spring, for Southern markets.

There can be no doubt but that a large portion of the production of the West will be taken to the Baltimore and Philadelphia markets, by way of the Susquehanna river, as soon as this railroad is completed, and until the New-York and Erie railroad is made, which will connect with this railroad at Owego.

I am, dear sir, very respectfully your obedient servant, John Randl, Jr.

Richard Varick Dewitt, Esq. Treasurer of the Ithaca & Owego Railroad Company.

Steamboat on the Susquehanna.—We have at length succeeded in obtaining the following description of the above boat:



Length, 95 feet; beam, 18 do.; draft, 15 inches; power, 35 horse. Length of boiler and height of chimney, see diagram above.

The flame from an open burning bituminous coal, after enveloping the boilers 35 feet, we are informed is easily brought out from the top of the chimney, a distance of 56½ feet. Since the introduction of coal, two tons supply the place of eight cords of pine wood. It has been for some time known to the public, that a steamboat has been navigating some of the most rapid waters of the west branch of the Susquehanna during the present season, with entire success. The result of this enterprize is justly considered of great importance to the State of Pennsylvania. It now appears that there are many hundred miles above the public improvements, which may be navigated by steamboats, calculated to draw an up-river trade into the State canals.

There is another circumstance connected with this business, which is highly important to Pennsylvania, and to the Atlantic frontier generally. After a full trial, it is ascertained that a very small quantity in bulk of an open burning bituminous coal will answer every purpose for generating steam to propel boats, locomotive, and other steam engines. All the trials of bituminous coal for the above purpose, in New-York and elsewhere in the United States, have heretofore been unsuccessful, in consequence of confining the heat and flame, thereby melting the grates, and preventing the flame from reaching and acting on the surface of the boilers. The error was in selecting the materials. All these difficulties are removed by the introduction of the above species of coal, which is almost free from bituminous smell. We believe we shall shortly see our locomotive engines propelled by a small quantity of this material, bringing from Columbia thousands of tons for our manufac-

turers. This is a new product of Pennsylvania. Let our neighbors of New-York and other states, who are now complaining of the price of wood, consider for a moment from where a substitute is to come, to propel their steamboats and other machinery: they will find it in the open burning bituminous coal of Pennsylvania.—[Phil. C. Her.]

LARGE HOLLY TREE.—Taking a walk with some friends a few days since in Stafford county, Virginia, we came across a large and elegant green tree, which we were told was a holly. It seemed almost incredible from its size, as the holly, though a native of America, rarely attains to more than a foot diameter, through the trunk. Upon approaching we found it to be the true American holly, or *Ilex Opaca*, which, measured at two feet from the surface of the ground, was seven feet six inches in circumference, or more than two feet in diameter. This tree is situated immediately on the new mail road from Potomac Creek to Fredericksburg, and but a few yards from the present road, about half a mile from the landing, and is well worthy of notice, as I have never heard of a holly growing to such a size in this country.—[National Intelligencer.]

NOISE OF THE ANVIL—*A Simple and Useful Invention.*—An Italian blacksmith has successfully practised a very simple contrivance to diminish considerably the loud noise occasioned by the percussion of the anvil. It is merely to attach a piece of iron chain to one of the horns of the anvil, which carries off a portion of the usual acute sound. But Sig. G. Visini Asso, in the province of Coma, has introduced an improvement to this by adding a spring to the basis of the anvil, which, (keeping the chain stretched,) diminishes the sound in a much greater degree; and it is equally easy to remove the ring of the chain from the horn of the anvil by a mere blow of the hammer.—[N. Y. Daily Advertiser.]

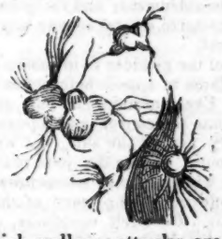
Notes on Mildew, from a Lecture on that Subject, by Professor Lindley, delivered at the Horticultural Society's Meeting Room, on the 24th of April. By J. W. L. [From Loudon's Gardener's Magazine.]

[Continued from page 569.]

It is a vulgar error to suppose that a berberry tree (*Berberis* vulgaris *L.*), if planted in a corn field, will, if infected with mildew, communicate the disease to the corn. This cannot be the case, as the mildew which attacks the berberry is quite different from any of the fungi which are found on corn. The berberry mildew, when magnified, is found to consist of a number of small orange cups,

with white films over each. When ripe, these lids burst, and the top of the cup assumes a ragged uneven appearance, like white fungi. Each cup has within it a number of little boxes containing seeds. The mildew on the pear tree is called Æcidium cancellatum. It first appears like mucus, but consists of a number of hairy substances. These hairs, when magnified, appear like a collection of granules of a bulbous shape, each containing a number of balls connected by strings. These balls, though so minute as to be scarcely perceptible by the eye, are yet only receptacles for seed. This is a most destructive fungus: it always seizes on the veins of the leaves, which afterwards turn yellow and fall off; the branches next wither, and in two or three years a whole orchard is destroyed. Mr. Knight, in 1832, suffered severely from this fungus, and has tried many experiments respecting its cure. Hawthorn trees are attacked by a fungus which at first appears merely a point made by an insect, but afterwards looks like fungi (Æcidium laceratum *Dec.*) The sycamore fungus is a black spot, consisting of oblong purplish bodies, yellow inside, and containing tubes filled with seeds. Æcidium Grossulariæ *Dec.* attacks gooseberry bushes, and Æcidium cornutum the mountain ash: both spread rapidly, and are very difficult to cure. The ergot on the rye is a well known and very destructive species of mildew. It partakes of the nature of the truffle, and grows out of a spike of corn like a prolonged kernel. It is long, horny, and cartilaginous; and it consists of fibres closely interlaced. This disease evidently originates in the centre of the stem. It affects maize, various species of grass, and is often found in plants of yellow gentian, &c.

The principal fungi of the third class, or those which attack the roots of plants, are two; and both closely resemble truffles. One of these (Rhizoctonia Crocorum), which is



of a brownish yellow, attacks crocuses; and in those countries where the crocus is cultivated for its saffron, as an article of commerce, it makes great ravages. It is called by the French *la mort du safran*, and soon destroys a whole crop. The other fungus, Periola tomentosa, is found on the potato, lucerne, &c. It turns the roots, which are naturally white, of a purplish hue. Its ravages are often attributed to grubs. Both these fungi appear to be propagated by spawn, or fibres which spread through the earth, and cling round the roots which they find in their way.

Having given a rapid sketch of some of the principal kinds of fungi which produce mildew, Dr. Lindley proceeded to speak of the causes which produce them, and of their cure. All are very easily propagated, from the rapidity with which they arrive at maturity, and the immense number of seeds which they produce. Most of the mildew fungi require only twenty-four hours from the first springing of the plant to the ripening of its seed; and the number produced by each may be guessed from the circumstance of one mushroom being sufficient to propagate 250,000,000. The extreme minuteness of the mildew fungi renders them still more numerous. The first class, or the superficial mildew, appears to be communicated by the air, the seeds when ripe being carried by it from one plant to another, and establishing themselves wherever they touch. They destroy a plant by covering the surface of its leaves, and thus preventing respiration. Plants are generally most affected by superficial fungi after a long drought, when the fibres of their roots are unable to imbibe sufficient moisture from the soil, and the plant thus becomes debilitated, and affords an easy prey to the parasite which attacks it: as a proof, Dr. Lindley mentioned that in Scotland, where there are heavy night dews, this fungus is unknown. The cure seems to be abundant watering. Dr. Lindley mentioned a case of some onions, in the gardens of the Society at Chiswick, which were attacked by this fungus. These onions had been transplanted, and their roots were consequently so much weakened as to be unable to imbibe a sufficient quantity of moisture. Dr. Lindley had the plants abundantly watered, which, though it did not cure the infected plants, appeared completely to arrest the progress of the disease. Other onions, not transplanted, were not attacked. A correspondent of this magazine, Mr. Haycroft, recommends a mode of curing this mildew, which appears to be effectual, by cutting off the infected branches, washing the walls with a composition, and removing the infected nails, &c. Sulphur has also been recommended, but is not found to answer.

The internal mildew evidently cannot be communicated by the air, since it always appears to spring from the interior of the plant, and to be at first covered with a thin skin, from which it does not burst till it is ripe. It is impossible, therefore, that this kind of mildew can be communicated externally, and yet the fact that it is contagious is so clear as not to admit a doubt. The only manner in which it appears probable that it can reach the interior is through the roots. The seeds, when ripe, fall upon the earth, which becomes contaminated by them, and they are sucked up by the spongioles of the roots. Mr. Dovaston has also held this opinion. The correctness of this hypothesis is proved by sowing clean seeds in infected soil; and the young plants from these seeds springing up with the disease upon them. The circumstance of its always attacking the most vigorous plants is thus also explained, as it is evident that the more rapid the circulation the greater is the probability of extraneous substances being drawn up with the moisture imbibed by the roots. It is also clear that, in this case, water must aggravate the disease; as, by exciting the plant to suck it up, it would increase the danger of the seeds of the fungi being drawn in with it. This was also the reason that Mr. Errington found that burying his celery roots only made the mildew spread more rapidly. The only cure for this fungus seems to be that adopted by Mr. Knight with his pear trees, viz., taking them up, washing the roots quite clean, from every particle of soil, and then replanting them in quite a different part of his grounds.

Red plants are said to be more liable to mildew than any other. Red is, indeed, supposed by some always to indicate a morbid action, as it shows that the plant is unable to absorb carbonic acid gas from the atmosphere, which is necessary to its perfect health; at all events, it is a proof of disease when leaves, or any other parts of a plant, not naturally red, assume that color. Other experiments have been made for curing, or at least preventing the spread of, the internal mildew; and Mr. Bauer has found that steeping grains of corn in lime-water will produce the desired effect. There appears no cure for mildew in the roots, but by cutting a deep trench round the infected plants, and cutting off all communication between them and the rest of the field.

NEW-YORK AMERICAN.

SEPTEMBER 7, 9, 10, 11, 12, 13—1833.

LITERARY NOTICES.

JOURNAL OF TWO VOYAGES ALONG THE COAST OF CHINA, IN 1831 and 1832, &c. &c. by CHARLES GUTZLAFF. 1 vol. New York: JOHN P. HAVEN.—This is, in many particulars, a remarkable book. It is written by a Prussian, educated as a physician, but whose attention being turned to the mission cause, "left his home and the most inviting prospects of even royal patronage, to commence the labors of a missionary in Eastern Asia." To discharge these with the more effect, he studied diligently, and acquired, the Chinese language,—at least one of its many dialects,—adopted the Chinese dress, queue and all, and adapted himself to their manners, as far as it could be done without sanctioning, or ever seeming to sanction, the licentiousness with which they are too much blended. So completely was he enabled by these means, and the currency which his skill as a physician gave him, to pass among this strange people as one of them, that he only did not reach Pekin in his first voyage (having approached within two days' journey of it) because the dialect spoken in the province through which he had to pass was different from that he had previously acquired, and he had not then the time nor opportunity to learn it. Perhaps no better insight can be given, into the character of this interesting traveller, than by the following extract from his journal, describing his longing and his motives for visiting Peking:

My anxiety was greatly inncreased by our approach to Peking. A visit to the capital of the Chinese Empire—an object of no little solicitude, after many perils, and much loss of time,—was now near in prospect. How this visit would be viewed by the Chinese government, I knew not; hitherto they had taken no notice of me; but a crisis had now come; as a missionary anxious to promote the welfare of my fellow creatures, and more willing to be sacrificed in a great cause, than to remain an idle spectator of the misery entailed on China by idolatry, I could not remain concealed at a place where there are so many mandarins,—it was expected that the local authorities would interfere. Almost friendless, with small pecuniary resources, without any personal knowledge of the country and its inhabitants, I was forced to prepare for the worst. Considerations of this kind, accompanied by the most reasonable conjecture, that I could do nothing for the accomplishment of the great enterprise, would have intimidated and dispirited me, if a power from on High had not continually and graciously upheld and strengthened me. Naturally timid, and without talent and resources in myself, yet by divine aid—and by *that* alone,—I was foremost in times of danger, and to such a degree, that the Chinese sailors would often call me a bravado.

The enthusiasm in a great cause here evinced, was nevertheless tempered by that sagacity and knowledge of human nature, which seeks to accomplish its ends by a skilful use of the ordinary means within its power; and which, though acting in obedience to the will of God, looks not for aid to any miraculous interposition.

From these pages of Mr. Gutzlaff more information is to be derived of the true character of the Chineses, we think, than from any other that we know; and they will be perused with interest, we are sure, by the Christian, who desires to see the light of the gospel spread to the remotest corners of the earth—by the man of letters—and not least by the merchant, seeking information as to new fields for his operations. The whole book inculcates throughout, the practicability of establishing intercourse with the Chineses, and enlarges upon the advantages in every sense that would result from it.

The first of these voyages was made in a Chinese junk; the second in a British East India ship, the Lord Amherst. We shall have occasion to return to this book in some future observations on the commercial importance of the regions it describes. We will now only add some extracts from it.

The Chineses are idolators, and of course superstitious. The propitiations of the "Queen of Heaven," related in the annexed account of the rites observed on the sailing of a junk, and in stress of weather, show how little human reason alone avails to make men wise:

The most distinguishing thing on board a junk is idolatry, the rites of which are performed with the greatest punctuallity. The goddess of the sea is Ma-tsoo-po, called also Teen-how, "queen of heaven." She is said to have been a virgin, who lived some centuries ago in Fuhkeen, near the district of Fuhchow. On account of having with great fortitude, and by a kind of miracle, saved her brother who was on the point of drowning, she was deified, and loaded with titles, not dissimilar to those bestowed on the Virgin Mary. Every vessel is furnished with an image of the goddess, before which a lamp is kept burning. Some satellites, in hideous shape, stand round the queen, who is always represented in a sitting posture. Cups of tea are placed before her, and some tinsel adorns her shrine.

When a vessel is about to proceed on a voyage, she is taken in procession to a temple, where many offerings are displayed before her. The priest recites some prayers, the mate makes several prostrations, and the captain usually honors her by appearing in full dress before her image. Then an entertainment is given, and the food presented to the idol is greedily devoured. Afterwards the good mother, who does not partake of the gross earthly substance, is carried in front of a stage, to behold the minstrels, and to admire the dexterity of the actors; thence she is brought back, with music, to the junk, where the merry peels of the gong receive the venerable old inmate, and the jolly sailors anxiously strive to seize whatever may happen to remain of her banquet.

The care of the goddess is intrusted to the priest, who never dares to appear before her with his face unwashed. Every morning he puts sticks of burning incense into the censer, and repeats his ceremonies in every part of the ship, not excepting even the cook's room. When the junk reaches any promontory, or when contrary winds prevail, the priest makes on offering to the spirit of the mountains, or of the air. On such occasions, (and only on such,) pigs and fowls are killed. When the offering is duly arranged, the priest adds to it some spirits and fruits, burns gilt paper, makes several prostrations, and then cries out to the sailors, "follow the spirits," who suddenly rise and devour most of the sacrifice. When sailing out of the river, offerings of paper are constantly thrown out near the rudder. But to no part of the junk are so many offerings made as to the compass. Some red cloth, which is also tied to the rudder and cable, is put over it; incense sticks in great quantities are kindled; and gilt paper, made into the shape of a junk, is burnt before it. Near the compass, some tobacco, a pipe, and a burning lamp are placed, the joint property of all; and hither they all crowd to enjoy themselves.—When there is a calm, the sailors generally contribute a certain quantity of gilt paper, which, pasted into the form of a junk, is set adrift. If no wind follows, the goddess is thought to be out of humor, and recourse is had to the demons of the air. When all endeavors prove unsuccessful, the offerings cease, and the sailors wait with indifference.

Such are the idolatrous principles of the Chinese, hat they never spread a sail without having conciliated the favor of the demons, nor return from a voyage without showing their gratitude to their tutelar deity. Christians are the servants of the living God; who has created the heavens and the earth; at whose command the winds and the waves rise or are still; in whose mercy is salvation, and in whose wrath is destruction; how much more, then, should they endeavor to conciliate the favor of the Almighhty, and to be grateful to the Author of all good! If idolators feel dependant on superior beings; if they look up to them for protection and success; if they are punctual in paying their vows; what should be the conduct of nations, who acknowledge Christ to be their Saviour? Reverence before the name of the Most High; reliance on his gracious protection; submission to his just dispensations; and devout prayers, humble thanksgiving, glorious praise of the Lord of the earth and of the sea, ought to be habitual on board our vessels; and if this is not the case, the heathen will rise up against us in judgment, for having paid more attention to their dumb idols, than we have to the worship of the living and true God.

The self-denial, courage and perseverance of the traveller himself, may be judged, in some degree, by his consenting to embark in one of these junks, with such accommodations and such companions as are enumerated below:

When I got on board, my cabin in the steerage, was pointed out to me; it was a hole only large enough for a person to lie down in, and to receive a small box. I had six fellow-passengers. One of them, a captain sixty years of age, was obliged to become a passenger, because his own junk was unseaworthy, having sprung a leak whilst moored in Meinam. He was my declared enemy; a master in opium-smoking; (using the drug to the amount of about one dollar per day;) a man thoroughly versed in all sorts of villainy; and averse to the instruction of his countrymen; though, at the same time, he was well aware of the superiority of Europeans, and knew the value of their arts. His son was an insolent youth, well trained for mercantile transactions; and anxious to amass wealth; he became my friend and neighbor. My mercantile friend, already mentioned, had a cabin beneath mine. He was remarkable for deceitfulness, loquacity, childish pride, and unnatural crime. His companion in trade was wealthy, self-sufficient, and debauched, but polite. In the practice of wickedness and deceit, no one was superior to captain Fo, another of my fellow passengers. This man had formerly been in command of a Siamese junk, bearing tribute to China, and was shipwrecked on the coast of Pulo Way. On his release from the island, he returned to Bankok. Being skilful in various sorts of workmanship, especially in painting and mechanics, he at length gained so much property, that he was able, this year, to put some hundred peculs of goods on board a junk, and to proceed to China, where he had two wives still living. He was devoted to opium, and prone to lying, but, according to his own declaration, my best friend.

Our captain, Sin-shun, was a friendly man, well versed in the art of Chinese navigation; but, unhappily, long habituated to opium-smoking. His younger brother showed himself to be a man of truth; he was my private friend and associate in every sort of trouble. One of the captain's brothers-in-law was the clerk; he denominated himself (from the moment I stepped on board,) my younger brother; paid attention to the instructions of the Gospel; and abstained from every sort of idolatry. The pilot claimed cousinship with me, being (as he said) of the same clan. He was little versed in the art of navigation, but had never been so unlucky as to sail his junk on shore. He was a man of a peaceful temper, a yielding disposition, and a constant object of raillery to the sailors. To all his good qualities, he added that of opium-smoking, in which art he had made considerable proficiency. His assistant was quarrelsome, but more attentive to the navigation than any other individual on board: and he also, as is the case with almost all the pilots, was trained up to the use of the drug; after having inspired the delicious fumes, he would often, against his inclination, sleep at his watch. All the principal persons, on whom depended the management of the vessel, partook freely of this intoxicating luxury; by which they were alternately, and sometimes simultaneously, rendered unfit for service.

When I embarked, though in a very feeble state of body, I cherished the hope, that God, in his mercy, would restore me again to health, if it were his good pleasure to employ in his service a being so unworthy as myself—the least, doubtless, of all my fellow-laborers in the Chinese mission. I took with me a large quantity of Chinese books, and a small stock of medicines,—the remnant of a large remittance made, not long before, by some kind English friends. I was also provided with some charts, a quadrant and other instruments to be used in case of emergency. Long before leaving Siam, I became a naturalized subject of the Celestial Empire, by adoption into the clan or family of Kwo, from the Tung-in district in Fuhkeen. I took, also, the name Shih-lee,—wore, occasionally, the Chinese dress, and was recognized (by those among whom I lived,) as a member of the great nation. *Now*, I had to conform entirely to the customs of the Chinese, and even to dispense with the use of European books.

We conclude for the present with the following description of *Teen-tsin*, a thriving commercial city far up the river *Pee-ho*, and within two days' journey of Peking:

The trade of Teen-tsin is quite extensive. More than five hundred junks arrive annually from the southern ports of China, and from Cochin-China, and Siam. The river is so thronged with junks, and the mercantile transactions give such life and motion to the scene, as strongly to remind one of Liver-

pool. As the land in this vicinity yields few productions, and the capital swallows up immense stores, the importations required to supply the wants of the people, must be very great. Though the market was well furnished, the different articles commanded a good price. In no other port of China is trade so lucrative as in this; but no where else are so many dangers to be encounted. A great many junks were wrecked this year; and this is the case every season;* and hence the profits realized on the whole amount of shipping, are comparatively small. Teen-tsin would open a fine field for foreign enterprise; there is a great demand for European woollens, but the high prices which they bear, prevent the inhabitants from making extensive purchases. I was quite surprised to see so much sycee silver in circulation. The quantity of it was so great, that there seemed to be no difficulty in collecting thousands of taels, at the shortest notice.—A regular trade with silver is carried on by a great many individuals. The value of the tael, here, varies from thirteen to fourteen hundred cash. Some of the firms issue bills, which are as current as bank-notes in England. Teen-tsin, possessing so many advantages for commerce, my very safely be recommended to the attention of European merchants.

By inquiries, I found, that the people cared very little about their imperial government. They were only aaxious to gain a livelihood and accumulate riches. They seemed to know the emperor only by name, and were quite unacquainted with his character. Even the military operations in western Tartary were almost unknown to them. Nothing had spread such a consternation amongst them as the late death of the heir of the crown, which was occasioned by opium-smoking. The emperor felt this loss very keenly. The belief that there will be a change in the present dynasty is very general. But in case of such an event, the people of Teen-tsin would hear of it with almost as much indifference, as they would the news of a change in the French government. The local officers were generally much dreaded, but also much imposed upon. They are less tyrannical here, in the neighbourhood of the emperor, judging from what the people told me, than they are in the distant provinces. When they appear abroad it is with much pageantry, but with little real dignity. Indeed, I saw nothing remarkable in their deportment. No war junks, nor soldiers were to be met with,—though the latter were said to exist. To possess fire-arms is a high crime, and the per son found guilty of so doing, is severely punished. Bows and arrows are in common use. There are no military stores; but stores of grain. The grain junks were, at this season, on their return home.

The features of the inhabitants of this district more resemble the European, than those of any Asiatics I have hitherto seen. The eye had less of the depressed curve in the interior angle, than what is common, and so characteristic, in a Chinese countenance. And, as the countenance is often the index of the heart, so the character of these people is more congenial to the European, than is that of the inhabitants of the southern provinces. They are not void of courage; though they are too grovelling to undertake any thing arduous or noble, and too narrow-minded to extend their views beyond their own province and the opposite kingdom of Corea. They are neat in their dress; the furs which they wear are costly: their food is simple; and they are polite in their manners. The females are fair, and tidy in their appearance,—enjoy perfect liberty, and walk abroad as they please.

* The Canton Gazette, of March 1832, states, that more than one half of the Chinese junks, bound to Teen-tsin in the year previous, were wrecked.—*Pub.*

TEXAS—Observations historical, geographical and descriptive, in a series of letters, by Mrs. MARY AUSTIN HOLLEY. *Baltimore:* ARMSTRONG & PLASKITT.—In a series of letters, written in a very smooth and agreeable style, this lady, the widow of the late President of Transylvania College, (Ken.) has here presented the result of her own observations and impressions on a visit made in 1831, to Austin's colony. In climate and natural products, this region would seem to be little less than a Paradise; though there, as in all earthly paradises, man must eat his bread by the sweat of his brow—that is to say, as Mrs. Holley fairly states to all who may be disposed to migrate thither, that "a soil that yields the fruit of nearly every latitude almost spontaneously, with a climate of perpetual summer, must, like that of other countries, have a seed time and harvest. Though the land be literally flowing with milk and honey, yet the cows must be milked and the honey must be gathered. Houses must be built and enclosures made, the deer must be hunted and the fish caught. From the primeval curse, that in the sweat of his brow man shall eat bread, though its severity be mollified, there is no exemption even here. The emigrant should bear in mind, that in a new community *labor* is the most valuable commodity." This is both fair and just; and such seems to us the general character of this pretty little volume.

The history and success of Col. Austin's settlement, which individual enterprize and perseverance alone have founded, without any aid from government, or associations of any kind, and which, in the course of about eight years, has swelled from its first feeble commencement, until now it numbers *six thousand persons*, are full of interest and encouragement to others, and reflect great honor on the character, abilities and courage of Col. Austin himself. We are glad to find throughout these pages the expression strongly stated that *Texas* desires nothing better than to remain a portion of the Mexican nation, one of the free States of that confederacy. We feared that so great an ingress of Americans might have led to the hope and wish of being incorporated with the United States: on the contrary, however, the inhabitants of Texas are in interest and feeling Mexicans; and we certainly trust our present southern boundary will never recede.

ENGLAND AND THE ENGLISH; BY E. L. BULWER. 2 vols. New-York, J. & J. HARPER.—The copious extracts which, on several previous occasions, we have made from this work, evince our opinion of its merit. It strikes us as a useful, original, and truly philosophical series of dissertations upon the Government and institutions of England, and upon the character and habits of the English. There is throughout, that vein of satire almost running into bitterness, which so particularly distinguishes Mr. Bulwer's manner of viewing things, and which certainly—such is the constitution of human nature—does not render his writings less attractive. Those, however, who expect to find in these volumes what some of the booksellers advertise them to be, "a new novel, by the author of Pelham," will be disappointed.

We shall make to-day but a single extract, which relates to popular education. It presents a better view of that in England, than we were prepared for; that is, as to the mere number of scholars; for in England, as with us, the books and the system of instruction seem alike imperfect—and is of interest, moreover, for its remarks on the class-books used in that most enlightened little duchy of Germany—*Saxe Weimar:*

A far greater proportion of the English population are now sent to school than is usually supposed, and currently stated. I see before me at this moment a statistical work, which declares the proportion to be only one in seventeen for England, one in twenty for Wales. What is the fact? Why, that our population for England and Wales amounts nearly to fourteen millions, and that the number of children receiving elementary education in 1828 are, by the returns, 1,500,000; an additional 500,000 being supposed, not without reason, to be educated at independent schools, not calculated in the return. Thus, out of a population of fourteen millions, we have no less than two millions of children receiving elementary education at schools.

In the number of schools and of pupils, our account, on the whole, is extremely satisfactory. Where do we fail? Not in the schools, but in the instruction that is given there: a great proportion of the poorer children attend only the Sunday-schools, and the education of once a week is not very valuable; bnt generally throughout the primary schools, nothing is taught but a little spelling, a very little reading, still less writing, the Catechism, the Lord's Prayer, and an unexplained, unelucidated chapter or two in the Bible; add to these the nasal mastery of a hymn, and an undecided conquest over the rule of Addition, and you behold a very finished education for the poor. The schoolmaster and the schoolmistress, in these academies, know little themselves beyond the bald and meager knowledge that they teach; and are much more fit to go to school than to give instructions. Now the object of education is to make a reflective, moral, prudent, loyal, and healthy people. A little reading and writing of themselves contribute very doubtfully to that end. Look to Ireland: does not the Archbishop of Cashel tell us, that a greater proportion of the peasantry in Ireland, yes, even in Tipperary, can read and write, than can be found amid a similar amount of population in England. I have been favored with some unpublished portions of the recent evidence on the Poor-laws. Just hear what Mr. Hickson, a most intelligent witness, says on this head:

Query. "Are you of opinion that an efficient system of National Education would materially improve the condition of the laboring classes?"

Answer. "Undoubtedly; but I must beg leave to observe, that something more than the mere teaching to read and write is necessary for the poorer classes. Where books and newspapers are inaccessible, the knowledge of the art of reading avails nothing; I have met with adults, who after having been taught to read and write when young, have almost entirely forgotten those arts for want of opportunities to exercise them."

"At the Sunday-schools," observes Mr. Hickson, afterward, "of most Dissenters, nothing is taught generally—I except rare instances—but reading the Bible and repeating hymns."

While we have so many schools organized, and while so little is taught there, just let me lead your attention to the four common class-books taught at all the popular schools of Saxe Weimar.

The first class-book is destined for the youngest children; it contains, in regular gradations, the alphabet, the composition of syllables, punctuation, elementary formation of language, slight stories, sentences or proverbs of one verse upwards, divers selelections, sketches, &c. "The sentences," says Mr. Cousin, "struck me particularly; they contain, in the most agreeable shapes, the most valuable lessons, which the author classes under systematic titles,—such as our duties to ourselves, our duties to men, our duties to God; and the knowledge of His divine attributes,—so that in the germ of Literature, the infant receives also the germ of Morals, and of Religion!"

The second book, for the use of children from eight to ten, is not only composed of amusing sketches,—the author touches upon matters of general utility. He proceeds on the just idea that the knowledge of the faculties of the soul ought a little to precede the more profound explanations of religion: under the head of dialogue between a father and his children, the book treats, first, of man and his physical qualities; secondly, of the nature of he soul and of its faculties, with some notions of our powers of progressive improvement and our heritage of immortality; and, thirdly, it contains the earliest and simplest elements of natural history, botany, mineralogy, &c.

The third work contains two parts, each divided into two chapters: the first part is an examination of man as a rational animal,—it resolves these questions: what am I? What am I able to do? What *ought* I to do? It teaches the distinction between men and brutes; instinct and reason; it endeavors to render the great moral foundations of truth clear and simple by familiar images and the most intelligible terms.

As the first chapter of this portion exercises the more reflective faculties, so the the second does not neglect the more acute, and comprises songs, enigmas, fables, aphorisms, &c.

The second part of the third work contains, first, the elements of natural history in all its subdivisions; notions of geography; of the natural rights of man; of his civil rights; with some lessons of general history. An Appendix comprises the geography and especial history of Saxe Weimar. The fourth book, not adapted solely for Saxe Weimar, is in great request throughout all Germany; it addresses itself to the more advanced pupils; it resembles a little the work last described, but is more extensive on some points; it is equally various, but it treats in especial more minutely on the rights and duties of subjects; it proceeds to conduct the boy, already made rational as a being, to his duties as a citizen. Such are the four class-books in the popular schools of Saxe Weimar; such are the foundation of that united, intellectual, and lofty spirit which marks the subjects of that principality.*

* I know nothing we more want in this country

A Subaltern's Furlough; descriptive of Scenes in various Parts of the United States, the Canadas, &c. during the Summer and Autumn of 1832; by E. T. Coke, of the 45th Regiment. 2 vols. New-York, J. & J. Harper.—This is rather a good-natured, prejudiced, slip-slop journal of a flying tour through the United States, during the prevalence of the Cholera in our principal cities last year, by a young lieutenant, tired of the *ennui* of home and a garrison, and bent upon judging the Americans with his own eyes. He lost no time on his route, and gained, we infer from his pages, not much substantial information; at least, he imparts little such. The judgment passed in the paragraph we annex upon the corps of Cadets, as a military body, and the scenery of the Highlands, may serve as evidence of his taste and accuracy:

I twice saw the cadets at drill, but their long hair, dirty grey uniform, and want of erect military carriage, were sufficient to mar the appearance of the finest body of men in the world under arms. The words of command, too, were issued in such a drawling, careless tone of voice, that the movements were necessarily performed in a similar manner,—devoid of all smartness and precision. The interior economy of the establishment, however, is said to be well conducted, and strict discipline is enforced by Colonel Thayer, the present gentlemanly and able commandant. Though the soldierlike appearance of the cadets might not have exacly come up to my expectations, yet, if ever the two nations are so unfortunate as to meet again in hostile array, the good effects of this institution will be appearent in the polished manners and information acquired there by American officers. In former campaigns, generals have been called from the rear of their counters to assume the command of armies, and men who could not even sign their name from the plough to head divisions. Owing to the scattered state of the forces, it was my fortune to become acquainted with only few military and naval officers; but the uniform attention and kindness I experienced from all was such that I should feel proud in being enabled to render similar courtesies to any one bearing a commission from the United States.

We embarked in the afternoon of the 28th of October in the gigantic steamer, the "North America," which shot through the Highlands at the rate of sixteen miles an hour. I should have had all the New-Yorkers up in arms, and inveighing against me in no measured terms, had I ventured to express any thing like disappointment at the scenery of the Hudson. But so it was, and my expectations were not realized; because, as at the Falls of the Mohawk, its beauties had been much overrated. I had generally heard the Hudson compared to the Rhine, and many, indeed, professed to think it superior; but my want of taste (I should imagine) would no more admit of such a comparison than it would that New-York and London should be mentioned in the same breath. The scenery between Albany and West-Point is not in any ways remarkable; the Highlands, when taken separately, have nothing interesting, and no single reach of the river possesses any particular beauty. The rocky hills, covered with a thin and low growth of trees, approach to the water's edge, without any signs of cultivation or habitations to give the scenery life. The *tout ensemble* is all that is pleasing, and the numerous craggy precipices towering one above another alone possess any claims to the picturesque. I had kept the Hudson in reserve, as a kind of *bonne bouche*, previous to my immediate departure for England, expecting that I might see it to the greatest advantage at a late season in the year.

Select Works of Tobias Smollet, *in two volumes. Philadelphia*, Carey, Lea & Blanchard.—Who that recollects the delight with which in school boy days he devoured the adventures of Roderick Random and faithful Strap, or rejoiced in all the fun of which Peregrine Pickle, and Hatchway, and Pipes, and the immortal Trunnion are the authors or the objects, but will think these volumes a famous offering to the amusement of the present generation, who, in the multiplicity of modern publications, might but for them have gone through life with brows unrelaxed by the irresistible humor of Smollett. There is prefixed to these volumes a memoir of the author, by Sir Walter Scott.

The Parson's Daughter, by the author of Sayings and Doings, 2 vols. Philadelphia, Cary, Lea & Blanchard.

The Contrast, by Earl Mulgrave, two vols.—*Philadelphia*, Carey & Hart.

These two works are as different in merit, as in the rank of their authors. The first, by Theodore Hook, is an exceedingly well wrought and affecting story, probable, or at least not improbable in its incidents, and very skilfully conducted to its fortunate close. The other, by the present Governor of Jamaica, is inferior, in all respects, to the former work, *Matilda*, of the same noble author—is improbable, cold and dull. In the Parson's Daughter there are at least three characters admirably drawn, that of Mrs. Harbottle, Emma, and the naval surgeon, McGopus. In the Contrast there is not one that leaves any strong impression.

Conner & Cook have just issued three additional numbers of their cheap edition of the Works of Walter Scott, viz. *The Fortunes of Nigel*, *Peveril of the Peak*, and *Quentin Durward*.

Bibliotheque Choisie de Literature Francaise, No. 5. Philad. *Carey, Lea, & Blanchard.* New-York, *Charles de Behr.*—This number completes the interesting story of *Cinq Mars*, which was commenced in No. 2. It gives also the answer of Lamartine to the Adieux of Walter Scott, and a very pretty little poem by M. Chateaubriand, addressed to Madame *Recamier*, entitled 'Le Naufrage.' We commend this periodical to the patronage of all who make a study of the French language, or take pleasure in French literature.

[*From the National Gazette.*]

The 27th number of the *American Quarterly Review* has been issued. It is announced in an advertisement prefixed, that the publication of the work will be continued by Messrs. Key & Biddle, of Minor street, to whom it has been transferred by Messrs. Carey, Lea & Blanchard. These gentlemen found it inconvenient, owing to the extent and nature of their general business as publishers. Messrs. Key & Biddle have likewise intelligence, capital, zeal, and wide connexions in their profession. The editorship of the Review remains in the hands in which it has been from the beginning. Every effort will be made by the editor and the new publishers to sustain the work in every respect. The savans, men of letters, and members of the learned professions who have hitherto furnished the greater part of its contents, rank with the first of the country. Abundant contributions from the same or like sources are confidently expected.

FOREIGN INTELLIGENCE.

From Smyrna.—We have received by the brig Ottoman, Capt. Carey, Smyrna papers to the 23d June, but they contain nothing important in addition to what had been received by way of England.

King Otho arrived at Smyrna on the 17th June in an English frigate. As soon as his arrival was known, great numbers of Greeks crowded to the quays to get a sight of their sovereign. On his landing, the crowd was so great that it was impossible to make his way through it, and he was obliged to return on board again, and land at a remote place.

Smyrna Market, June 23.—The return of peace has already had a happy influence upon our market, and although in a dull season of the year, yet considerable activity is observed. The arrival of the caravans, which had been delayed by a variety of circumstances, has contributed to revive commerce in some degree.

Coffee.—The quantity in depot is considerable at this time, in consequence of some important speculations which have just been made by European houses. The present rates are 700 a 760 p., but holders are expecting an advance, and demand 750 a 800.

Sugar.—The depot is very limited. Most of the Havana white is held at 180 p. per qtl. which is expected to be obtained, notwithstanding sales have been made at 165 a 170. The article is becoming more scarce every day.

Wool.—Prices vary according to quality, from 150 to 180 p. per qtl.

The crops in general this year promise well, particularly raisins and oil.—[Boston D. Adv.]

[*From the Boston Gazette.*]

Trade with St. Croix.—A mercantile friend has favored us with a St. Croix paper of the 5th inst. containing an Ordinance in relation to commerce and shipping in that Island, from which we make the following extracts:

With regard to Shipping.

§ 1. All vessels, without distinction, Danish or foreign, either from Danish or foreign parts, shall in virtue of this ordinance have free admittance at St. Croix, and may discharge or load cargoes in the port of Christiansted or the road of Frederiksted.

§ 2. The former charges on vessels under denomination of anchorage, fees, stamp duties, &c. are revoked: anchorage, however, to be paid on the whole tonnage of vessel.

Free admission or free duty.

Corn, Meal, Indian Corn, RumPuncheons, Staves, Heading and Hoops for Sugar Hhds, and RumPuncheons, Cooper Nails, Hoes, Bills, Utensils for Boiling Sugar, Distilling Rum and for Sugar Mills, Fire bricks, Mules and Asses.

Vessels arriving,

Discharging goods amounting to one-half of the full cargo of the vessel or upwards, pay 48 sk: for each Commercelast,

When 1-4 to 1-2 of a full cargo is discharged 32 sk: for each commercelast,

If less than 1-4 of the full cargo is discharged 16 sk: for each Commercelast.

Vessels departing.

Anchorage to be paid in the same proportion according to the cargo taken on board. All vessels neither loading or discharging cargo to be free from charges of anchorage, as well as all our Island vessels trading between St. Croix and the other Danish Islands.

If anchorage has been paid at one of the Island Custom Houses, no additional charge can be demanded during the same voyage, except the vessel should again discharge or load more goods, and which in conjunction with the former discharging or loading—should reach such amount as subjects her to pay a higher rate of anchorage money.

SUMMARY.

Mr. Audubon, of whose recent tour, a sketch will be given in our next number, taken from the Boston Daily Advertiser, reached this city well, and well satisfied. After a short sojourn among us, and a tour to some of the neighboring States, which will, we do not doubt, have the effect of adding some names to the list of subscribers for his magnificent work, Mr. Audubon, will, as we learn from him, depart for Tampico, on a bird tour through Mexico. His indefatigable labors will leave no field connected with the subject of his great publication unsearched; the public will take care, we are sure, that these labors shall not be without their reward.

The following are the remarks found in the last received number of the London Christian Remembrancer on the Rev. Thomas S. Britain's book, called by him "An Apology for conforming to the Protestant Episcopal Church, contained in a series of letters addressed to the Right Rev. Benjamin T. Onderdonk, D. D., Bishop of the Diocese of New York"—1833.

"Almost every arrival brings us some new proof of the growing importance of the American Church. We have a little volume of singular merit, which which we wish to see widely circulated, with the necessary mutatis mutandis, among Churchmen and dissenters at home. It is an admirable defence of Episcopacy, and derives additional value from the circumstance that the writer is a convert from conviction to the principles which he advocates, having been originally a dissenting member. The American Episcopalians may well be proud of gaining so fair a proselyte, and of ranking so zealous an advocate in the number of their brethren."

$603,900 were passed to the credit of the U. States Treasury on Monday by the Collector of this port.—It was the amount of duties collected during the previous week, after deducting debentures, return duties,

than good class-books for the use of popular schools; books that shall exercise the judgment and teach children to *reflect*. Such works should be written by a person of philosophical mind, practised in education, and linked to no *exclusive system*,—the curse of knowledge in this country.

light house bills and all other sums paid by the Collector. It is, we understand, the largest sum which ever accrued in a single week. This does not look much like a *reduction* of revenue.—[Jour. Com.]

The Washington, which sailed on Wednesday, for Canton, has on board ten young men, of respectable families, who have gone out for the first time, with the intention of becoming ship-masters. They are all amply provided with instruments and books to learn navigation. May success attend them.

It is hardly necessary to add, that the Washington is a Temperance ship, as *all* the shipping articles of our East Indiamen are now headed—"No Grog;" the appalling word which has cost our underwriters so many millions.—[Journal of Commerce.]

[*From the Baltimore' American.*]

The steamboat *Watchman*, Lieut. GEDNEY, of the U. S. Navy, commander, sailed yesterday at one o'clock for Mobile, intending to stop at Charleston to take in fuel. This boat was built at Washington, D. C. and is to transport the U. S. mail on Lake Pontchartrain between New Orleans and Mobile.—The Watchman is a staunch boat of 246 tons, with elegant accommodations for passengers, and a low pressure engine, constructed by Messrs. Watchman and Bratt of this city. It is expected that the efforts which the contractors on that route are now making, will enable them to convey the New Orleans mail with regularity. On the arrival of the Watchman at Mobile, Capt. Edmondson will assume command.

The weather continues disagreeably warm. The city is healthy for the season; some cases of yellow fever have appeared, but that sickness does not prevail as an epidemic. Absentees however, should be in no hurry to return for a while yet.

Business is very dull. People have now little more to do than to anticipate the activity of the approaching season when our birds of passage return among us to take up their winter quarters.—[N. O. Bee, Aug. 21.]

Extract of a Letter dated Oaks Corners, Ontario Co. (N. Y.) Sept. 4.

DESTRUCTIVE STORM.—"We have met with great losses since your last letter. My wheat being cut, and most of it remaining in the fields, there was, on the 15th ult. a severe hail-storm, with high wind, which overturned the shocks, blew down fences, trees, &c. whilst the hail shelled out much of the wheat. My corn is nearly cut off, and five acres of buckwheat, as fine as ever grew, entirely swept off in five minutes. Dr. Steward, who lives about a mile from me, had a barn, in which were several tons of hay and a horse, removed about *five feet* from its foundation; but the frame being strong, it is still standing. One other barn in the neighborhood was blown over. The storm extended from 1 1-2 to 2 miles in width, passing from N.W. to S.E. but how far I have not yet learned. I have yet heard of no loss of life by it, although the hail was so large that I picked up one the next morning, two hours after sunrise, which was 4 inches in circumference."

The *Anniversary Dinner of the Horticultural Society*, was given yesterday at Niblo's, the President, Mr. J. Lorillard, presiding, supported by Messrs. P. Hone and C. Oakley, Vice-Presidents, and honored by the presence of many members of the Court of Errors as guests.

The display of fruit was very handsome; and some among them, particularly a *bon Chretien* pear, raised in Springfield, N. J. were rare and excellent. The peaches and nectarines were abundant. Of figs, there were some very good. The grapes and melons were not remarkable. The table was ornamented with natural flowers, among which the gorgeous Dahlias predominated. A box of flowers, very prettily arranged, was sent by Madame Parmentier, and excited general admiration.

It was altogether an agreeable entertainment, enlivened with mirth and song, and good wine. The following are the regular toasts:

1. The President of the United States.
2. The Army and Navy of the United States.
3. The Governor of the State of New York.
4. The Mayor and Commonalty of the city of New York.
5. The highest Tribunal of the State, constituted to meliorate the harshness of Law, and to *prune* its *wild sprouts*.
6. The state of New York,—Powerful without ambition, wealthy without pride, and noble without vanity; while she is the first in greatness, she is the last in presumption! and is ever ready to make a sacrifice to the "Union."
7. The United States,—Unexampled in their united prosperity; may they be unequalled in their united duration.
8. Horticulture,—The first employment of man in his state of primeval innocence; it is the noblest science which can occupy his attention, having the highest sanction to recommend it.
9. Agriculture, Manufactures, and Commerce,—The three great sources of national wealth; united, they form the strongest safeguard of our national independence.
10. Horticultural Societies in every quarter of the globe; while they unite their efforts, to beautify and improve the earth, its flowers, and its fruits, may they also contribute to the moral and intellectual improvement of the whole of the human family.
11. The memory of DE WITT CLINTON—"Born to exalt the glory of his native State, his life is interwoven with her history, and his name as imperishable as her existence."
12. The memory of William Wilson, the first President of this Society, our late highly esteemed and much respected advocate.
13. The Fair sex,—The choicest flowers of our country.

VOLUNTEER TOASTS.

By the *President, Jacob Lorillard, Esq.* The Horticulturist, who unites the cultivation of the moral sense with the cultivation of the vegetable tribes.

By the 1st *Vice President, Philip Hone, Esq.* Nullification—A noxious plant, first sown by an INTRUDER in the Garden of Eden: may it be effectually eradicated from the rice fields and cotton plantations of our beloved country.

By the 2d *Vice President, Charles Oakley, Esq.* The practical Gardeners of New York—They have shown themselves worthy of public patronage: may they find their reward in a liberal public.

By Mr. Bronson, of the Senate. Horticultural Excellence—The *fruit* of intelligence, enterprize and industry.

By Mr. *Westcott*, of the Court of Errors. The City of New York—Not less distinguished for its liberal hospitality, than for its resources and enterprize.

By Mr. Macdonald, of the Senate. The practical Farmer, aided by the scientific Agriculturist.

By the *Mayor* of the City. The man who cultivates his own fields, and his own garden, with his own hands.

By C. W. Lynde, of the Senate. Agriculture and Horticulture—One the stock, the other the blossom, may they succor each other—and their fruits will be abundant, provided there is no nullifying weed suffered to flourish in their midst.

By Alexander Walsh. Horticulture—The art by which nature is taught to improve her own productions.

By John W. Wyman. The Gardener—Let him be proud of his employment—the only one designated for man, by the Almighty himself.

By Daniel E. Delevan. The memory of Linnæus—Much as we owe of pleasure to his perseverance and industry in bringing the science of Botany to its present state of perfection, to gratify the eye and the palate, let us not forget that he aimed at a still higher motive—the ennobling of the faculties, and the refinement of the heart.

By Mr. *Livingston.* The Hudson and Delaware Canal.

By Alexander Hamilton. A repeal of the duties on coal, and a reduction of canal tolls.

By Mr. *G. Davis.* Horticulture, the most rational employment of man—*our earthly paradise:* may we eye with caution the forbidden fruit.

By Mr. *Price.* The Vice President of the United States—An indigenous plant will survive the shock of transplantation.

By *D. K. Minor.* The Boston Horticultural Society—Solicitous alike for the *repose of the dead*, as for the refinement and happiness of the living: may this Society speedily imitate their example, in providing a RURAL CEMETERY.

The Bon Chrotien Pear, presented by Mr. Wade, three of which weighed 2 lbs. 3 ozs., was raised by *William Stiles, Esq.* of Springfield, N. J, from a tree imported a few years since from France;—a description of which, with an engraving of one of the Pears, and other kinds of fruit, together with a more particular account of the *Anniversary* of the Society, will be given in the next number of the New York Farmer.

The annexed obituary notice from a Canada paper, will interest many yet alive in this State who knew and highly respected the late Dr. Cochran:

Died at Windsor, Nova Scotia, on Sunday, the 4th August, aged 77, the Rev. William Cochran, D. D., for many years Vice President and Professor of Languages, Logic and Rhetoric in King's College at Windsor. Dr. Cochran was a native of the neighborhood of Omagh in the North of Ireland, and received his education at Trinity College, Dublin, where he took his first degree with distinction, to which the University, many years after his removal to Nova Scotia, added the degree of D. D. by special diploma, an honor rarely conferred by that learned body. In 1784, shortly after completing his education, he came to America, and was appointed Professor of Languages in the College of New York, formerly called King's College, and then re-opened after the peace with the United States under the name of Columbia. Here he had under his care several young men who have since attained the highest reputation and distinction in the United States, and some of whom kept up a correspondence with him until a late period of his life. Among his pupils were the late Governor Dewitt Clinton, and John Randolph—Dr Hosack, one of the most eminent living physicians of the United States—the late Dr. John Mason, Chancellor Jones, and others. Although he early secured the friendship of the first persons in the community, (among others, of the distinguished and lamented Alexander Hamilton, who honored him with his particular and warm regard,) a dislike of republican institutions and habits led him to remove in 1787 to Nova Scotia, where he was appointed to the charge of the Public Academy at Halifax, and was induced, in 1789, to accept the situation of President of the Collegiate School, then established by the Provincial Legislature at Windsor, with a promise, that on the Royal Charter being granted to it, he should remain at the head of the institution.—When the charter was granted in 1802, a majority of the Governors, in violation of this promise, through the influence of one of their number, who was a member of the University of Oxford, and thought that no good thing could come out of an Irish College, obtained the appointment of an Oxford graduate, as President. Dr. Cochran, however, continued in the institution, as Vice President, and Professor; and in those capacities, by his sole exertions, sustained its character, and at different periods, its very existence, when it must otherwise have been shut up, until, in 1831, his great age, and increasing infirmities, compelled him to resign.—In the course of his labors, as an instructor of youth, in Nova Scotia, a large proportion of the members of the three learned professions, who have risen to eminence or become the instruments of good in their generation, either in that Province or in New Brunswick, (and many in the Canadas,) have owed either the foundation or the completion of their education to his instruction. A list of his pupils still alive, would be found to include many of the highest standing in the church, the law, the medical profession, and the service of government throughout the North American Colonies. The authority of the teacher was in him so tempered by winning kindness and benevolence that instruction became attractive, and while its effect was thus increased, it rarely happened that any of those who left his care, ceased to regard him in after life with affection as well as with respect; the teacher of the youth became the "agreeable companion, the fatherly adviser, the warm and steady friend," of the man of mature years; and the connection continued to the last, a source of mutual comfort, pride, and pleasure. Uniting an accurate knowledge of the ancient classics with a singular sensibility to their beauties, he added to these an extensive acquaintance with modern literature, and it was his great object to infuse a taste for both into those whose education he conducted; and to crown the whole with principles and habits of religion and moral conduct, and of practical usefulness. He had been for 43 years a Missionary of the Society for Propagating the Gospel, and it is believed was the oldest missionary in their service at the time of his death. In that service he encountered labors, hardships, and even dangers, of which those only can form an idea, who know what was the condition of the new settlements in Nova Scotia 40 years ago. His health, which had suffered for several years from severe attacks of disease, had entirely failed during the last few months, until at last, having approached the extreme boundary of human existence, "he came to the earth like a shock of corn in its season," peacefully closing a life of usefulness, simplicity, piety and virtue, in the stedfast hope, through the merits of his Redeemer, of rising to a life of blessedness hereafter.

SCIENTIFIC MEETING AT CAMBRIDGE.—The British Association for the Promotion of Science have held their third annual meeting at Cambridge, Professor Sedgwick in the chair. The meeting consisted of near 800 persons, comprising the most distinguished men of science from every part of the empire. The general meetings were held in the Senate-house; and the sectional meetings, under their respective Vice-Presidents, were held in the extensive range of apartments behind the Senate-house. The first day was occupied in various arrangements and preliminary discourses, describing the objects of the meeting; and the subsequent days in reading papers on various philosophical subjects. The proceedings each day commenced at 10 o'clock in the morning in the various sections under their respective Vice-Presidents, and the whole assembled together in the Senate-house at 1 o'clock, under the direction of the President: when the proceedings of the respective sections were reported, and followed by reading papers upon general subjects. The *coup d'œil* of the Senate-house during these re-unions was particularly imposing, comprehending above 1000 persons, of both sexes, distinguished for their rank, talent, and accomplishments. On the third day the Master and Fellows of Trinity College gave a splendid entertainment to 400 members of the Association, in their great hall, the Vice-Master, Dr. Brown, in the chair, supported by Dr. Buckland, Professor Sedgwick, the Marquis of Northampton, Earl Fitzwilliam, Lord Morpeth, and Sir J. V. B. Johnstone. The evening passed off in the greatest harmony and enthusiasm. It was truly a most splendid sight to behold 400 of the most learned and enlightened men of science from different parts of Europe and America, all united together for the advancement of knowledge in that hall where Newton, Bacon, Barrow, and other immortal philosophers, had so frequently met before for a similar purpose. On the fifth day, doctors' degrees were conferred on Lords Fitzwilliam and Morpeth, Mr. Davies Gilbert, Sir Thos. Brisbane, &c. In the afternoon, the Master and Fellows of St. John's College gave a grand dinner to some members of the Association. On the sixth day the whole concluded with a grand concert of vocal and instrumental music. The next meeting will take place at Edinburgh.—[New Monthly Magazine.]

RICHARD LANDER'S EXPEDITION.

To the Editor of the London Literary Gazette:

CUSTOM HOUSE, LIVERPOOL, 31st JULY, 1833.

Sir—Knowing the lively interest you take in my brother's welfare, and the success of the expedition of which he has the command, any news of him will, I am quite sure, be highly acceptable to you. Various reports of a discouraging but contradictory nature have been recently circulated here in regard to the expedition, which are pretty generally believed; but I am happy to say, many of these reports are destitute of all foundation, and others are so grossly exaggerated, that the truth can with difficulty be discovered in the maze of error and falsehood in which it is entangled. May I, therefore, be permitted to inform you of all that is known at present of the expedition to the Niger, though the accounts are so meagre as almost to require an apology on my part for presuming to trouble you with a recital of them.

You are already apprised of the decease of Captain Harris of the Quowara, and of the arrival of both steamers at the Eboe country. You are also aware that the sailing brig Columbine was to remain at the mouth of the Nun river to await their return. By a letter received from a medical gentleman at Old Calabar, dated April 19, I learn that "as a vessel called the Martha of this port was passing the Nun, on her destination to the Old Calabar river, she was hailed by a boat's crew from the Columbine. When received on board, the men stated that the captain of their vessel had died three weeks previously; that they had been reduced to great distress from the refusal of the natives to sell them provisions, from which extremity they were relieved by an American vessel which had happily just entered the river; and that they had themselves ventured over the bar to crave further assistance from the Martha. When questioned about the steamboats, they declared they had received no intelligence whatsoever, respecting them, though five months had elapsed since the period of their departure."

In allusion to this letter, I would venture to observe, that the people inhabiting the banks of the Nun river are exceedingly poor and destitute, being themselves very frequently in want of the necessaries of life. Their alleged refusal to assist the crew of the Columbine must have arisen from their utter inability to do so, rather than from any display of heartless indifference to the sufferings of their countrymen, though Heaven knows, the poor wretches are bad enough at times. In regard to the non-arrival of information from the steamers in the interior a thousand conjectures might be hazarded. For my own part, I see no great reason to wonder at this delay, chiefly because I am convinced no intercourse is, or can, under existing circumstances, be established between any part of the interior and the coast. This would be at variance with the barbarous policy of the barbarous tribes inhabiting the country in the vicinity of the sea. They would not suffer a messenger from the interior to escape their vigilance. Were any one to attempt the journey, he would infallibly be captured and sold; therefore, unless our countrymen were themselves to descend the Niger, and be bearers of their own despatches, I see no possibility of any communication being carried on between the steamers in the interior and the sailing brig on the coast.

A letter has just been received by a gentleman at this port from a young friend in the Bonny river; it is dated 17th May. Adverting to the expedition, the writer says—"When we passed the river Nun, the Columbine was lying there, but nothing had been heard of the steamers that went up the country. I was told this by the Captain of the Curlew sloop of war, who was on board the Columbine about a month ago. I gave him all the letters I had for the expedition, as he said he would return to the Bras river at the end of two or three weeks. A great many have died on board the brig."

Still more recent accounts, which I have been able to collect from individvals who have within these few days arrived from Bonny, confirm the accuracy of these statements and give a still higher coloring to the distresses of the crew of the Columbine. One of them states, that the acting master and a boy were the only survivors on board; and that these solitary individuals had sent to Bonny for assistance. However, I am disposed to doubt the truth of this report, simply because it was brought to Bonny by a native trader, whose steadiness and veracity could not be depended on. An intelligent young gentleman informed me yesterday, that about the latter end of May a rumor prevailed very generally from Accra to Badagry, that "the white men in the *walking canoes* were in good health, and were trading a long way back in the bush."

I cannot close this letter without apprising you of a fact, which will appear incredible to you. Can you believe me when I assert, on the most unquestionable authority, that there are merchants here so heartless and inhuman as to instruct the masters of their vessels who trade to the African coast, to "refuse any assistance to the expedition, of which it may stand in need; to reject all letters that may be sent from the parties connected with it; and, in fine, to hold no communication whatever with the steamers or the brig." Does it not startle you, that jealousy and selfishness can go so far? Believe me, I blush at the reflection of a crime so hideous and un-English as this. I am, &c. JOHN LANDER.

N.B. The fact of the merchants' instructions to the masters of their vessels may be depended on. Nothing can be more true. They have gone even farther than I have ventured to hint. They have taken measures to prejudice the minds of the natives against the expedition.

[*From the London Athenæum.*]

HIPPOPOTAMUS HUNT.

The following account of an African hunt, may interest sportsmen. It appears to be somewhat more laborious and dangerous sport than an English *battu:*

"As all our attempts to obtain an hippopotamus had hitherto failed, and as we were not likely to meet with another opportunity, this being our last visit to Delagoa Bay, a party of officers volunteered for the chase, and were conveyed up the Dundas river in the Albatross. The evening set in before they reached that part of the river where the hippopotami were the most abundant. Three parties were however formed, who at midnight commenced their pursuit. The scene was novel and imposing; a body of men armed at all points with muskets, harpoons, and lances, walking on the shallows of the river, with nothing but the moon to light them, all hallooing and driving before them their huge game, who, blowing, snorting, and bellowing, were floundering through the mud from the numerous holes which they had made at the bottom for their retreat, but from which the hunters' lances soon expelled them, until ultimately driven upon dry ground, where a running contest commenced, the beasts sometimes being pursued, and at others pursuing.

"This lasted for some time; but still there were no signs of man's boasted pre-eminence:—not an animal had the party secured dead or alive. * * * * * * * * At low water the following morning, one party formed a line across one of the shallows, where the depth was not above two feet, while the boats were up the river and actually drove the animals down the stream, another party having lined the banks to prevent their taking to the woods and reeds. These, whenever the monstrous but timid animals attempted to pass them, set up a shout, which in most instances proved sufficient to turn them back into the water; when, having collected a vast number on one shallow bank of sand, the whole of the hunters commenced from all sides a regular cannonade upon the astonished brutes. Unwieldly as they appeared, still much activity was displayed in their efforts to escape the murderous and unceasing fire to which they were exposed. The one-pound gun occasionally furrowed the thick hide of some, while others were perpetually assailed by a shower of pewter musket-balls. One, a cub, was nearly caught uninjured in attempting to follow its mother, who, galled to desperation, was endeavoring to escape through the land party; but, as soon as the affectionate brute perceived her offspring falling into the hands of her enemies, forgetting her fears, she rushed furiously at the offenders, when they in their turn were obliged to retreat; but again they contrived to separate them, and had almost secured their prize, when the angry mother, regardless of their close and almost fatal fire, succeeded in redeeming it from their grasp and bearing it off, although herself in a state of great exhaustion. With the flood this sport ended.

"On their return to the schooner along the banks of the river, passing near a spot where an hippopotamus had been seen sporting in the water, a loud rustling was heard amongst the reeds, as if an animal had retreated thither on the discharge of their pieces. Messrs. Arlett and Barrette, with two of the seamen, immediately followed with the view of driving him out. The former gentleman was a little in advance, and eager in the pursuit, when he was heard loudly to exclaim, "here he is!" The shrill, angry scream of some large animal followed, and in a few moments Mr. Barrette rushed from the reeds with his face covered with blood and calling loudly for assistance, as Lieut. Arlett was attacked and thrown down by an elephant. The party were immediately on the alert in search of the unfortunate officer, whom they expected to find a mangled corpse. As they approached, the elephant, alarmed at their numbers, retreated, leaving his victim on the ground in a state that may more easily be imagined than described. He was stretched motionless on his back, covered with blood and dirt, and his eyes starting from the sockets, in all the expressive horror of a violent death.

"Every attention was immediately paid to him, but it was long feared that the vital spark had fled. Some water was procured, when, after his face had been washed and a little introduced into his mouth, he showed symptoms of returning life; but it was some time before he recovered his senses, and became sufficiently collected to give a connected account of the occurrence that had led to his pitiable state. It appeared that, from the thickness of the reeds, he was close to the animal before he was at all aware of his situation, but immediately on making the discovery, he uttered the exclamation heard by his companions of "here he is!" This had hardly escaped him, when he discovered that, instead of an hippopotamus, he was almost stumbling over an enormous elephant.

"The animal, which appeared highly irritated at the intrusion, waved his trunk in the air, and the moment he spoke, reared upon his hind legs, turned short round, and, with a shrill, passionate cry, rushed after him, bearing down the opposing reeds in his way, while Lieut. Arlett vainly attempted to effeht his escape. For a short time he had hopes of eluding his pursuer. The animal perceived on of the seamen mounted on the top of a tree, about twenty feet high and three circumference, menacing him by his voice and gesture, while preparing to fire. The elephant turned short round, and, shrieking with rage, made a kind of spring against the tree, as if to reach the object of his attack, when his ponderous weight bore the whole to the ground, but fortunately without hurting the man, who slipped among the reeds. The ferocious animal still followed him, foaming with rage, to the rising bank of the river; the man crying loudly, "An elephant! an elephant!" until, closely pursued by his pursuer, they both came

upon the top of the slope, where the party who had heard his cries were prepared and instantly fired a volley as the elephant appeared. This made him return with increased fury to Mr. Arlett, who, in his eagerness to escape, stumbled and fell, the huge beast running over him and severely bruising his ancle.

"As soon as he had passed, Mr. Arlett arose, and, limping with pain, attempted once more to retreat, but the animal returned to the attack; his trunk was flourished in the air, and the next moment the unfortunate officer was struck senseless to the ground.—On recovering himself his situation appeared hopeless, his huge antagonist standing over him, chaffing and screaming with rage, pounding the earth with his feet, and ploughing it with his tusks. When the party first saw them, Mr. Arlett was lying between the elephant's legs, and had it been the intention of the animal to destroy him, placing a foot upon his senseless body would in a moment have crushed him to atoms; but it is probable that his object was only to punish and alarm, not to kill—such conjectures being perfectly in accordance with the character of this noble but revengeful beast.

"Mr. Arlett was with much care instantly conveyed on board the schooner, when, on examination, it was found that his body was severely bruised, yet no bones were broken, except the fibula of the left leg, which was supposed to be slightly fractured. It appeared that the elephant, on his last return to Mr. Arlett, had filled his trunk with mud, which, having turned him on his back, and forced open his mouth, he blew down his throat, injecting a large quantity in to his stomach. It was this that produced the inflated appearance of Mr. Arlett's countenance, for he was almost in a state of suffocation, and for three days after this adventure, he occasionally vomited quantities of blue sand.

"When he encountered the elephant, he had a rifle in his hand; but he was too close to fire, knowing as he did, that in case of failure his destruction would be certain; for, when wounded, the desperation of the animal is fatal to all. Upon conveying him to the boat, this rifle was forgotten, and a party of four were despatched to reco_ it. They had just succeeded, and were about to return, when the elephant rushed in amongst them. The first and second men fired without effect, but the ball of the third fortunately turned him."

AN INTERESTING AND USEFUL MAP.

A friend of ours has now in a state of forwardness, a Map upon which will be delineated nearly all the Railroads now chartered in the U. States. It is designed to show the *present* contemplated connexion of the different lines, as well as where others may hereafter be constructed to connect with them. It will be completed in a few weeks, and may be had either in sheets, or put up in morocco for pocket maps, in any quantity, by applying to the subscriber.

D. K. MINOR,
35 Wall street.

New-York, August 14, 1833.

NOTICE TO MANUFACTURERS.

☞ SIMON FAIRMAN, of the village of Lansingburgh, in the county of Rensselaer, and state of New-York, has invented and put in operation a Machine for making Wrought Nails with square points. This machine will make about sixty 6d nails, and about forty 10d nails in a minute, and in the same proportion larger sizes, even to spikes for shivs. The nail is hammered and comes from the machine completely heated to redness, that its capacity for being clenched is good and sure. One horse power is sufficient to drive one machine, and may easily be applied where such power for driving machinery is in operation. Said Fairman will make, vend and warrant machines as above, to any persons who may apply for them as soon as they may be made, and on the most reasonable terms. He also desires to sell one half of his patent right for the use of said machines throughout the United States. Any person desiring further information, or to purchase, will please to call at the machine shop of Mr. John Humphrey, in the village of Lansingburgh.—August 15, 1833. A29 tf RM&F

☞ TOWNSEND & DURFEE, of Palmyra, *Manufacturers of Railroad Rope*, having removed their establishment to Hudson, under the name of *Durfee, May & Co.* offer to supply Rope of any required length (without splice) for inclined planes of Railroads at the shortest notice, and deliver them in any of the principal cities in the United States. As to the quality of Rope, the public are referred to J. B. Jervis, Eng. M. & H. R. R. Co., Albany; or James Archibald, Engineer Hudson and Delaware Canal and Railroad Company, Carbondale, Luzerne county, Pennsylvania.

Hudson, Columbia county, New-York, January 29, 1833. F3 tf

TO RAILROAD COMPANIES.

☞ PROFESSOR RAFINESQUE, of Philadelphia, will undertake to build CARS that will carry along their own railway, and may be used on level M'Adam roads. They will save ten millions of money to be wasted on 1000 miles of iron railroads to be laid in the United States within a few years and dispense with tracks and double tracks. These Cars may be drawn by horses or steam. He claims to have discovered them ever since 1825, by his caveats filed in the Patent Office Apply, post paid. S1 R J M M&F

☞ GRACIE, PRIME & CO. offer for sale, at 28 Broad street—

2 cases Gum Arabic
20 do. Danish Smalts, EFFF
10 do. Saxon do. do. } Reduced Duty
100 bags Saltpetre
2 do. Gall Nuts; 20 tons Old Lead
100 do. Trieste Rags, FF
6 boxes each 50 lbs. Tartaric Acid
6 do. each 25 lbs. do. do.
1 case 50 boules Syrop de Vinaigre
10 cases White Hermitage; 20 do. Cote Rotie
10 do. Dry St. Peray; 50 do. Bordeaux Grave
20 do Chateau Grille; 5 cases each 12 bottles Olives in Oil
8 bales Fine Velvet Bottle Corks
100 do. Bourton Cloves
30 do. Molieres Almonds
143 bundles Liquorice Root
4 bales Goat Skins
1 cask Red Copper, 1 do. Yellow do.

DRY GOODS BY THE PACKAGE.

10 cases light and dark ground Prints
40 do. 3-4 and 6-4 colored and black Merinos
15 do. 5-8 colored and black Circassians
2 do. Silk Bandannas, black and colored
4 do. Italian Lustrings
3 do White Satteens
4 do. White Quiltings
10 do. Borrie's Patent Thread, No. 22 and 25
10 do. Super high col'd Madras Hdkts, ent. to debenture
100 pieces Fine English Sheetings, for city trade
3 cases Cantoon Cords
2 do. Super blue, black, and colored Cloths—selected expressly for Merchant Tailors
25 bales low priced point Blankets.

PAPER—

IMPERIAL AND ROYAL—From the celebrated Saugerties Mills, of the following sizes, all put up with 480 perfect sheets to each ream—

Sizes—24x35, 24½x36, 24x34½, 25x36, 26x37, 29x41, 27x38½, 24x38, 24x29, 24x28, 24x26, 24x27, 20x24, &c., &c.

Also—All the old stock of Medium will be sold at very reduced prices, to close sales, the Mill having discontinued making that description of paper.

ALSO,

Chinese Colored Paper—for Labels, Perfumery, &c.
5 cases each 1600 Sheets Colored Paper
2 do do do do do superfine
2 do do do fig. do do
3 do do do plain Gold do
2 do do do plain Silver do
2 do do do Silver do with red figures
2 do do do Gold do do
2 do do do Red do Gold do
2 do do do White do Silver do. A 2

SURVEYORS' INSTRUMENTS.

☞ Compasses of various sizes and of superior quality, warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by E. & G. W. BLUNT, 154 Water street, corner of Maidenlane. J31 6t

ENGINEERING AND SURVEYING INSTRUMENTS.

☞ The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely *new*: among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also, a Railroad Goniometer, with two Telescopes—and a Levelling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,
Mathematical Instrument Maker, No. 9 Dock street, Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested.

Baltimore, 1832.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee with the following information The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,
JAMES P. STABLER, Superintendant of Construction of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors. E. H. GILL, Civil Engineer.

Germantown, February, 1833.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad., Germant. and Norris. Railroad

m1 1y

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroads,

No. 264 Elizabeth street, near Broome street, New-York.

☞ RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlæm Railroad, now in operation. J25 tf

NOVELTY WORKS,

Near Dry Dock, New-York.

☞ THOMAS B. STILLMAN, Manufacturer of Steam Engines, Boilers, Railroad and Mill Work, Lathes, Presses, and other Machinery. Also, Dr. Nott's Patent Tubular Boilers, which are warranted, for safety and economy, to be superior to any thing of the kind heretofore used. The fullest assurance is given that work shall be done well, and on reasonable terms. A share of public patronage is respectfully solicited. m18

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

☞ Also, AXLES furnished and fitted to wheels complete, at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to. Also, CAR SPRINGS.

Also, Flange Tires turned complete.

J8 ROGERS, KETCHUM & GROSVENOR.

INSTRUMENTS.

SURVEYING AND NAUTICAL INSTRUMENT MANUFACTORY.

☞ EWIN & HEARTTE, at the sign of the Quadrant, No. 53 South street, one door north of the Union Hotel, Baltimore, beg leave to inform their friends and the public, especially Engineers, that they continue to manufacture to order and keep for sale every description of Instruments in the above branches, which they can furnish at the shortest notice, and on fair terms. Instruments repaired with care and promptitude.

For proof of the high estimation on which their Surveying Instruments are held, they respectfully beg leave to tender to the public perusal, the following certificates from gentlemen of distinguished scientific attainments.

To Ewin & Heartte.—Agreeably to your request made some months since, I now offer you my opinion of the Instruments made at your establishment, for the Baltimore and Ohio Railroad Company. This opinion would have been given at a much earlier period, but was intentionally delayed, in order to afford a longer time for the trial of the Instruments, so that I could speak with the greater confidence of their merits, if such they should be found to possess.

It is with much pleasure I can now state that notwithstanding the Instruments in the service procured from our northern cities are considered good, I have a decided preference for those manufactured by you. Of the whole number manufactured for the Department of Construction, to wit: five Levels, and five of the Compasses, not one has required any repairs within the last twelve months, except from the occasional imperfection of a screw, or from accidents, to which all instruments are liable. They possess a firmness and stability, and at the same time a neatness and beauty of execution, which reflect much credit on the artists engaged in their construction.

I can with confidence recommend them as being worthy the notice of Companies engaged in Internal Improvements, who may require Instruments of superior workmanship.

JAMES P. STABLER,
Superintendent of Construction of the Baltimore and Ohio Railroad.

I have examined with care several Engineers' instruments of your Manufacture, particularly Spirit levels, and Surveyor's Compasses; and take pleasure in expressing my opinion of the excellence of the workmanship. The parts of the levels appeared well proportioned to secure facility in use, and accuracy and permanency in adjustments.

These instruments seemed to me to possess all the modern improvement of construction, of which so many have been made within these few years; and I have no doubt but they will give every satisfaction when used in the field.

WILLIAM HOWARD, U. S. Civil Engineer.

Baltimore, May 1st, 1833.

To Messrs Ewin and Heartte—As you have asked me to give my opinion of the merits of those instruments of your manufacture which I have either used or examined, I cheerfully state that as far as my opportunities of my becoming aquainted with their qualities have gone, I have great reason to think well of the skill displayed in their construction. The neatness of their workmanship has been the subject of frequent remark by myself, and of the accuracy of their performance I have received satisfactory assurance from others, whose opinion I respect, and who have had them for a considerable time in use. The efforts you have made since your establishment in this city, to relieve us of the necessity of sending elsewhere for what we may want in our line, deserve the unqualified approbation and our warm encouragement. Wishing you all the success which your enterprize so well merits, I remain, yours, &c.

B. H. LATROBE,
Civil Engineer in the service of the Baltimore and Ohio Railroad Company.

A number of other letters are in our possession and might be introduced, but are too lengthy. We should be happy to submit them upon application, to any persons desirous of perusing the same. m25

CANALS.

Canal Tolls and Canal Navigation.—The aggregate amount of tolls received upon all the canals of the state for the month of August, is $147,945: exceeding the amount made during the same month last year, by the sum of $58,266. The revenue derived from tolls, from the opening of navigation, to the first of September, is greater by more than *one hundred and fifty-eight thousand dollars*, than it was during the same months of 1832: and exceeds by about $100,000 the receipts for the like period in 1831. The Cholera had a serious effect in diminishing the tolls for July and August of last year.

There is every indication of an active and extensive fall business, and it is now certain that the tolls of this year compared with last, will show an increase of a hundred and fifty thousand dollars, and it would not be surprising if the increase should come up to two hundred thousand.—[Albany Argus.]

Our Canals.—We republished yesterday from the Albany Argus a brief paragraph, stating the receipts from tolls on the Canals of this State during the month of August, with comparative statements from and up to the same period in other years, showing a constantly increasing and flourishing business. In another column will be found a circular issued by the Comptroller of the State, to the holders of Canal stocks redeemable in 1837, offering a premium for such portion of those stocks as the holders may be tempted at once to realize. Even these two publications, however, significant as they are, fail to give an adequate notion of the real and growing value to this State, to the Western States, and indirectly, but unquestionably, to the Union at large, of these great New York channels of intercommunication. We derive from the Argus some additional particulars, which will interest all readers.

It has already been stated in this paper, that the tolls on the Erie Canal, both on the ascending and descending freight, had been reduced at the commencement of the season. The reduction on the articles constituting the principal descending trade, such as flour, salted provisions, butter, cheese, wheat, &c., was equal to 29 per cent. on former rates; that on the ascending trade, chiefly composed of more valuable but less bulky merchandize, was equal to 14 1-2 per cent. Notwithstanding these reductions, the increase of the tolls exceeds $157,000—thus furnishing another instance of the swelling of revenue by the diminution of duties. The transportation on the Canals grows so rapidly, however,—and great as it is, it is yet far from the extent it must reach, unless repelled by want of accommodation and facilities,—that great inconvenience is already experienced from delays at the locks. "The constant use of the locks night and day," says the Argus, "has not been sufficient to pass all the floats, without a delay which is vexatious and expensive." There *must* be a double set of locks, and that soon; for time is money, and reduced tolls will be counteracted, and the benefit of them be lost, if what is saved in pecuniary expense be counterbalanced by long delay. It is contemplated, and very wisely we apprehend, by a simultaneous proceeding in Ohio and in this State, to reduce the rates of toll levied in each State on merchandize, 25 per cent. This will add greatly to the ascending trade of the Erie Canal, and present an additional reason for doubling the set of locks; because, such a trade can only be secured through this channel, by the greater despatch and certainty with which merchandize will thus reach its various destinations in the far West.—Delay in this instance would be fatal to transportation. How various are the points in the western and south-western States already reached through the Erie Canal, will appear from this paragraph of the Argus:

We are informed that goods, coming from New-York, have been shipped the present season from Albany to Galena, Pekin, Peoria, and Lower Alton, in the State of Illinois; to Paris, Maysville, Petersburgh, Louisville, and Lexington, Kentucky; to Chicago and Green Bay, Michigan Territory; to Fort Wayne, via the Maumee, Indiana; to Nashville and Clarksville, Tennessee; to St. Louis, Missouri; and to Florence, Alabama. This information is derived from one of the forwarding lines, (the Merchants',) and embraces only the places to which that line had shipped goods; there are several lines engaged in transporting goods to Ohio, and the other western States, whose, shipments might have been referred to, but we have given points in six States beyond Ohio, which are reached by goods transported through the Erie Canal.

It is impossible to look at the facts here hastily alluded to, and to let the imagination rove even within the most reasonable limits of the future they foreshadow, and not to feel pride in belonging to this great State;—this State, as just as patriotic, and as forbearing as it is great.

Redemption of Erie and Champlain Canal Stocks.—The following circular has been issued by the Comptroller of this state, to the holders of Erie and Champlain canal stocks, which are reimbursable in 1837.

Comptroller's Office,
Albany, August 7, 1833.

The holders of the New-York state stock issued for the construction of the Erie and Champlain canals, are informed that the commissioners of the canal fund are now ready to pay off and cancel the stock which is redeemable in 1837.

As an inducement to the holders of this stock to surrender it and receive payment therefor, four years before the period fixed for this redemption, the commissioners offer to pay a premium of five per cent. upon the five per cent stock, and a premium of eight per cent upon the six per cent stock of 1837.

These premiums will be paid upon any amount of the said stock which shall be transferred to the commissioners on the first day of October next, or on the first day of January, 1834, after the holdiers shall have received the quarter's interest due on those days respectively: Or the commissioners will pay the premiums before stated, together with the current interest upon the stock from the preceding quarter day, to the day of the purchase, for any amount which shall be transferred to them at any time before the first day of January next.

The holders of the Erie and Champlain canal stock are reminded that the surplus moneys now in the hands of the commissioners are by the constitution of the state, pledged to reimburse the principal of this stock, and cannot be diverted from that object. It is therefore morally certain, that on the first of July, 1837, the entire sum which shall remain unpaid of the stock which is redeemable in that year, will be paid off at par. And with the means of redemption in the hands of the commissioners, it is equally certain, that as the time approaches when they can legally redeem this stock at par, the premium which is now offered will gradually diminish, until it reaches that point.

The holders of this stock will perceive that if they can re-invest their money at four per cent. it will be for their interest to sell at the premiums now offered. The surplus canal funds upon which the commissioners are drawing for the redemption of this stock, are deposited in sundry banks, and yield an interest to the state of 3 1-2 and 4 1-2 per cent. It will readily be seen that the situation of the surplus canal funds enables the commissioners, in the purchase of this stock, to offer terms highly favorable to the interests of the stockholders, without any material sacrifice of the pecuniary interests of the state. The commissioners readily admit, what must be inferred from the high premium offered, that they are very anxious to apply the money in their hands to the redemption of the Erie and Champlain canal stock. In making a small apparent sacrifice to effect this object, the state gets rid of the hazard incident to the management of three or four millions of dollars; and by gradually possessing itself of the stock of 1837, the serious pressure upon all the monied operations of the state will be avoided, which might result from allowing the canal moneys to accumulate in the state banks—to be diffused by them through every department of business—and then to be drawn for on the 1st of July, 1837, to the amount of three and a half millions of dollars, for the redemption of the stock then payable.

These and other considerations have induced the commissioners of the canal fund to offer so large a premium for the redemption of the canal stock of 1837; and they have supposed that this object might be promoted by giving this explanation, and by making known to the stockholders the terms on which the stock can be redeemed.

Respectfully your obedient servant,
A. C. Flagg, *Comptroller.*

MARRIAGES.

Last evening, September 9, in St. Thomas Church, by the Rev. Dr. Hawks, William Winne, of Albany, to Jane M. eldest daughter of Donald Malcolm, Esq. of this city.

This morning, by the Rev. Dr. Woodbridge, Frederic W. Burke, to Ann C. daughter of the late Apollo Potter, all of this city.

DEATHS.

At Brooklyn, L. I., this morning, (Sept. 9) George Henry, aged 6 months, infant son of Francis G. Fish.

On Wednesday, Lyman Clark, aged 60.

At Staten Island Sept. 4th, Mr. James Parsons, of Georgia

On Thursday evening, Wm. Sloan, aged 37 years.

On Sunnay last, Jos. Levy, in the 44th year of his age.

Yesterday, Rufus A. son of Chas. W. Davenport, aged seven years, seven months and twelve days.

Last evening, at New Town, L. I. near Halletts Cove, William, son of Thomas R. Lawrence, in the 6th year of his age.

Of Yellow Fever, at sea, on board the Condordia. from New Orleans, on the 2d inst. Charles Card, aged 21, son of William Card, Esq. of this city.

On Wednesday, of consumption, Elizabeth Harbinson, in the 47th year of her age.

On Saturday evening, Mrs. Miriam Bunker, wife of Elihu S. Bunker, aged 58 years.

On Saturday evening, of diarrhœa, Joseph Hardcastle, aged 35 years, son of Joshua Hardcastle, ancient printer of New York.

At his residence, on the 7th instant, after a long and painful illness, John Levitt Harris, Esq., (nephew of Levitt Harris, Esq., American Chargé at Paris,) Mayor of the city of Burlington, N. J., in the 46th year of his age.

Yesterday morning, in the 66th year, Mr. George Bement, Merchant, of this city.

This morning, Elizabeth Carmer, aged 72 years.

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Flushing, near New York.

WILLIAM PRINCE & SONS announce to all the proprietors of nurseries and to those who wish to establish *new Nurseries*, that they will furnish all articles desired at a liberal discount, and a credit that will allow time for advantageous reimbursement. We wish also to make known to all venders of seeds, and to those who desire to undertake such business, that we will furnish every variety of Vegetable, Field and Flower Seeds, in quantities, at very low rates. These seeds possess the advantage of being raised under our own observation, or, when imported, of being tested to our satisfaction, and the *accuracy and vitality of the Seeds is expressly guarantied.* A number of new and choice varieties of Vegetables will be found in the catalogue, which have never before been offered to the public. Bulbous Flower Roots and Dahlias, which are easily transported, and vended in a dry state, can be supplied to any extent at rates that will afford a large profit to the retailer. Every person already engaged, or who desires to engage in the sale of the above articles, will, on application, receive all the information requisite to the object in view, and such an establishment ought to exist in every town in the Union. The new catalogues, with reduced prices and extensive additions to every department, will be forwarded to all applicants, and the present period is particularly suitable for forming arrangements in anticipation of the fall business. A liberal credit will be allowed on Seeds, Bulbous Roots, &c. A large quantity of seed of white Italian Mulberry, Luzerne, white Dutch Clover, Ray or Rye Grass, yellow Locust for timber, now on hand.

It is requested that all orders be sent *direct per mail*, and whether large or small, they will receive prompt attention

S10 c2t

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Editors in the city or country, copying this advertisement, will receive a commission on any contract procured by their means.

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*** Orders for these works, or any other of Professor Rafinesque's, received at this office.

A9 tf J M & F